HANDY OFFICE BOOK

of SYSTEM, FORM AND METHOD

A Quick Reference Book of
Answers to Everyday Questions on

FINANCE – ACCOUNTING – SELLING – LAW
ORGANIZATION – MANAGEMENT – PRODUCTION
CUSTOMARY PRACTICE – BUSINESS CALCULATIONS

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PREFACE

Every one in business has questions recurrently arising in each day's work where a quick answer to some point of routine procedure, customary business practice or perhaps commercial law or accounting will save delay, trouble or at times a serious mistake. The *Handy Office Book* is designed to be a right-hand assistant in such matters, for constant desk use. It gives quick and ready answers, definitions, tables, formulas, and forms whose value needs no comment.

Any of these points may of course open up a situation where more extended investigation, planning and detail are involved. Fortunately, in all the fields of business there are excellent works by recognized authorities which give almost any elaboration of treatment desired. During thirty years of experience the Publishers have issued hundreds of such works on organization, finance, law, production, accounting, selling and other topics. When an important problem must be effectively solved, a dependable reference work may easily be worth literally hundreds of dollars in time saved and advantage gained. The Publishers will be glad to assist users of the *Handy Office Book* with information regarding such reference works whenever the need may arise.

THE RONALD PRESS COMPANY

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HANDY OFFICE BOOK

OF SYSTEM, FORM AND METHOD

HANDLING CASH RECEIPTS AND DISBURSEMENTS

An efficient system of internal check requires that the work of the bookkeeper be separated from the work of the cashier whenever the volume of business warrants doing so. In large establishments the cashier's work is divided among three individuals—the receiving cashier, the disbursing cashier, and the petty cashier.

Cash Receipts.—All mail should be opened by a person other than the cashier or bookkeeper. He lists all receipts in duplicate and sends the original list with the cash to the receiving cashier, who enters the amount in the Cash Receipts Book and deposits the cash in the bank. The duplicate list goes directly to the bookkeeping department, thus affording a check against the cashier's work. Depositing in the bank all receipts, whether checks or currency, makes possible a check of the deposits shown on the bank statement against the cashier's record, thus facilitating the tracing of any errors.

Cash Disbursements.—All disbursements should be made by check, currency payments being made through the medium of a petty cash fund. Each check drawn should be listed, even though it has been "voided." Checks should be numbered serially, the numbers being either printed or stamped, and all numbers should be accounted for when the bank account is reconciled. Although counter-signatures are desirable, these will not in themselves prevent forgery, since both signatures may be forged. Neither will they prevent errors from carelessness in those cases when each signer relies wholly on the other for the accuracy of the drawing of the instrument.

The proper handling of cash necessitates also use of the imprest system for petty cash and the reconciliation of the bank account each month.

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

A periodic report of cash is usually made by means of a statement of receipts and disbursements. This statement is an abstract or summary of the cash book, showing the total receipts from various sources and the causes of the disbursements and their totals. A simple form is given below.

STATEMENT OF RECEIPTS AND DISBURSEMENTS
For Week Ended

RECEIPTS:		
Cash Sales	$10,129.40	
Accounts Receivable	25,464.50	
Notes Discounted	1,500 00	
Miscellaneous: Interest, Rebates, etc.	519 20	
Total this week	$37,613.10	
Previous Balance	2,319.40	$39,932 5(
DISBURSEMENTS:		
Accounts Payable	$28,492.10	
Salaries and Wages	4,193.25	
Delivery Equipment	250 00	
Advertising	1,300 00	
Miscellaneous: Interest, General Expense, etc	920.15	35,155.5(
Balance on Hand, as per cash book		$ 4,777.0(

To assist in checking past deposits, an itemized record of daily cash receipts is often kept, analyzed as to gold, silver, currency, notes, and checks. To be of value this record should be filed with the daily deposit tickets and should be later available for purposes of comparison.

CHECK REGISTER—FORM AND USE

The check register is a record of checks issued and the accounts kept with the banks of deposit. If discounts on purchases are deducted when the invoice is vouchered and are, therefore, in the "Purchase Discount" column of the voucher register, the record of cash disbursements becomes merely a list of checks issued and may be condensed into a check register, a form of which, suggested by Kester ("Principles of Accounting"), is shown on the following page. Checks issued are listed in the register as to (a) date, (b) check number, (c) voucher number, and (d) the

Check Register

DATE		VO No	CHECK No	AMOUNT	BANK "A" Deposits	BANK "A" Checks	BANK "A" Balance	BANK "B" Deposits	BANK "B" Checks	BANK "B" Balance	BANK "C" Deposits	BANK "C" Checks	BANK "C" Balance
							1,792 60			4369 40			1,241 79
Oct	1	275	301	2,195 70	2125 30		3,917 90	1000 —	2,195 70	3,174 70			
	2	248	302	275 30		275 30	3,642 62						
		281	303	137 53							987 40	137 53	2,091 66
	3	293	304	860 47					860 47	2,313 23			

amount. At the end of the month the total number of checks drawn is posted to the credit of the bank account and charged to the audited vouchers account in the general ledger. In case there is more than one bank account, a separate check register should be provided for each bank, this being especially essential if there is a separate series of check numbers for each bank; or two or more money columns should be provided in the same register.

RECONCILIATION OF BANK BALANCE

Two methods of reconciliation are used. The one brings the bank's balance into agreement with that of the depositor; the other starts with the depositor's balance and brings it into agreement with that of the bank.

Factors to be Considered.—The first step in the reconciliation is to discover which of the checks issued by the depositor have not as yet been paid by the bank. This is done by arranging the returned checks in numerical sequence and comparing these with the depositor's record of checks issued.

Other factors which must be taken into account in the reconciliation are as follows. Where several bank accounts are kept and a check register, in addition to the cash book, is used to keep records of the accounts with the banks, checks drawn on one bank may be wrongly charged to another. Checks drawn or deposits made one day may not be credited until the next. Certain drafts deposited with the bank for collection may not be credited to the depositor's account until collection is made, whereas the depositor may debit the bank at the time of deposit. Again, it may happen that the bank's charges for collection or interest allowed by the bank on the deposit may not have been recorded. Where there are many of these adjustment items to be taken into account, it may be necessary to list them in formal schedules under such heads as:

1. Bank charges, we do not credit.
2. Bank credits, we do not charge.
3. We charge, bank does not credit.
4. We credit, bank does not charge.

Methods Illustrated.—The two methods of reconciling bank balances are illustrated in the "Financial Handbook" as follows:

First Method

AMERICAN TRUST CO., DECEMBER 31, 19—			
Balance per statement			$68,315.36
Add—Note of Albany Manufacturing Co. protested, now returned, including $2 55 fees . .			252.55
Deposit of December 31 not credited by trust company			1,892.00
Collection charges for December not entered in cash book			6.20
Check tax for December not entered in cash book.			2.56
			$70,468.67
Less—Interest credited by bank not entered in cash book		$ 93.10	
Checks outstanding:			
6319	$ 50 00		
6682	125.00		
6714	73.10		
6716	139 45		
6717	68.25		
6718	1,000 00	1,455.80	1,548.90
Balance per cash book			$68,919 77

Second Method

Balance as per cash book			$68,919 77
Add—Checks outstanding:			
6319	$ 50 00		
6682	125 00		
6714	73.10		
6716	139 45		
6717	68 25		
6718	1,000.00	$1,455.80	
Interest credited by bank not entered in cash book		93.10	1,548 90
			$70,468.67
Less—Note of Albany Manufacturing Co. protested, now returned, including $2.55 fees		$ 252.55	
Deposit of December 31, not credited by trust company		1,892.00	
Collection charges for December		6.20	
Check tax for December		2.56	2,153 31
Balance as per bank statement of December 31.			$68,315 36

PETTY CASH—IMPREST SYSTEM

In all businesses small payments for items such as postage, express, and carfares are made in currency, and for this purpose a petty cash fund is established by cashing a check for a specified amount and making the charge to a "Petty Cash Fund" ledger account. When a payment is made out of the fund, a receipt or

voucher for it should be secured. When the fund needs replenishing, these receipts are summarized and OK'd by the office manager or some other official, and a check is cashed for these total payments and the proceeds deposited in the fund. By this system, which is commonly referred to as the "imprest system," the amount of cash in the fund at any time plus the amount of the vouchers should equal the total with which the fund is operated.

When the reimbursing check is cashed, the various accounts affected by the petty cash disbursements are debited, and thus in effect all petty cash payments become "payments by check." The fund may be reimbursed each day, each week, or at the close of the month. The reimbursing check may be cashed at the bank or from the daily receipts. In the latter case it should be deposited in the bank in the place of currency, so that the total of the receipts will appear as bank deposits. The entries for disbursements are made in the Cash Disbursements Book. Although not incorrect, it is useless work to credit the payments to the Petty Cash Fund and charge that account with the reimbursing check.

PAYROLL DEPARTMENT

The function of this department is to accumulate and assemble the payroll and to facilitate the prompt payment of the employees on the regular pay-days. In this department are kept the records from which the total payments made to each employee for the year are calculated and reported to the employee and to the Bureau of Internal Revenue as information at the source for personal income tax purposes. The actual payments made to the employees may be either by check or in currency and should be made by some officer other than those of the payroll department to prevent fraudulent padding of the payroll. Ordinarily the cashier's office makes the actual payments. If payments are made by cash the clock card is sometimes receipted by the employee; if they are made by check the canceled check is usually considered sufficient receipt. Where the number of employees is large the work of the payroll department is more evenly distributed by staggering the pay-days. It may be desirable to pay off one-fifth of the force each of the first five days of the week. This is simply a method of expediency in order to utilize more fully the minimum equipment and clerical force necessary to handle the payroll. See payroll forms, opposite.

FORM 8920

DAY WORK PAYROLL SHEET

PAY ENDING

MAN NO.	0	1	2	3	4	5	6	7	8	9	DAILY TOTAL AMOUNT OF ROLL
RATE											
DATE	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	
1-16											
2-17											
TOTAL WAGES											
TOTAL HOURS											
TRANSFERRED FROM											
TRANSFERRED TO											
TRANSFERRED DATE											
PAID OFF DATE											
PAID OFF NAME											

DAILY RECAPITULATION OF FACTORY PAY ROLL

CADILLAC MOTOR CAR COMPANY

DATE B.C. NO. DEPT. NO.

POSTED BY	ACCUMULATED BY	BALANCED BY	DATE	INDIRECT LABOR								DIRECT LABOR						TOTAL LABOR	
				INDIRECT DAY WORK		INDIRECT PIECE WORK		BONUS GROUPS		EXCESS		DIRECT DAY WORK		PIECE WORK		BONUS GROUPS			
				HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT	DIRECT	INDIRECT	HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT	HOURS	AMOUNT
			1																
			2																

CASH SHORTAGE AND OVERAGE

When the balance of the cash book does not agree with the amount of cash on hand as shown by actual count, and the error cannot be rectified at the time, an entry is made in the cash book, on whichever side necessary, in an amount sufficient to bring the book balance into agreement with the actual cash balance. The other account to be debited or credited, as the case may be, is a clearing account: "Cash Short and Over." If the cause of the discrepancy is subsequently discovered, the item should be transferred from "Cash Short and Over" to its proper account.

Usually the Cash Short and Over account is treated as an income or expense account, depending upon the nature of its balance, and is closed into Profit and Loss at the end of the period. Sometimes it is treated as an asset or liability account, depending upon the amount of the discrepancy shown and its probable cause. Also, a large shortage should be charged to surplus.

HANDLING CASH SALES IN THE ACCOUNTS

Simple System.—Where an analysis by kind of commodity is unnecessary, a simple method of booking cash sales is by entry in a "Sales" column provided in the cash book, the total of which is posted to the credit of "Sales" in the ledger. Under this method, cash sales need not be entered in the sales journal.

It is sometimes desirable to distinguish between cash and charge sales, thus requiring two accounts, the "Sales on Account" and the "Cash Sales," to show the total sales for the period. This is accomplished by the use in the sales journal of the "On Account" and "Cash" columns whose totals furnish the amounts for posting to the two ledger accounts. Even if it is desired to have two sales accounts, the cash and charge, for each department, the necessary information can be secured by providing in the sales journal two columns, a cash and a charge for each department and posting their totals to the two sales accounts.

Departmental Sales.—When it is desired to keep an account to show the total cash sales of all departments and at the same time to keep one sales account for each department, in which will be recorded both cash and charge sales, the purpose is accomplished by providing the sales journal with two total or general columns—in addition to the departmental columns—one for charge

and one for cash sales, and by carrying a Cash Sales column in the cash book. The items in the Cash Sales column in the sales journal are distributed to the proper analytic columns for classification. At the end of the period, the totals of these analytic columns (which include both cash and charge sales items) are posted to the credit of the proper departmental accounts in the ledger. The total of the Cash Sales column in the sales journal, however, is posted to the debit of Cash Sales in the ledger, which will be offset by a corresponding credit item from the Cash Sales column in the cash book. These two totals should agree provided the books are completely posted.

WORKING CAPITAL

One definition of working capital which has been the traditional one, is the excess of current assets over current liabilities. In many published reports of corporations, however, the term is now used to signify merely current assets, while "net working capital" is employed to designate the excess of current assets over current liabilities. Below is shown a statement of working capital taken from the 1933 report of the General Motors Corporation:

Statement of Working Capital

Current Assets	Dec. 31, 1933	Dec 31, 1932
Cash, U. S. Government and other marketable securities	$177,303,966	$172,780,695
G. M. Management Corp. 6% bonds, due March 15, 1934	375,000	–
Sight drafts	3,070,585	4,126,901
Notes and accounts receivable	21,180,677	27,591,756
Inventories	115,584,600	75,478,612
Prepaid expenses	2,500,779	3,280,910
Total Current Assets	$320,015,607	$283,258,874
Current Liabilities		
Accounts payable and accrued liabilities	$ 50,299,407	$ 40,566,749
U. S. and foreign income taxes	12,673,537	498,466
Employes savings funds, payable within one year	11,278,956	15,193,660
Contractual liability to G. M. Management Corp., due March 10, 1934	368,006	–
Accrued preferred dividends	1,562,805	1,562,805
Total Current Liabilities	$ 76,182,711	$ 57,821,680
Net Working Capital	$243,832,896	$225,437,194

BALANCE SHEET FORM SPONSORED

Assets

Cash:			
On hand		$	
In bank		. . . . .	$ . . . . .
Notes and accounts receivable:			
Notes receivable, customers' (not past due)	$		
Accounts receivable, customers' (not past due)	. . . . .		
Notes receivable, customers' (past due)	. . . . .		
Accounts receivable, customers' (past due)	. . . . .	$	
Less—			
Reserve for bad debts	$		
Reserve for discounts, freight, allowances, etc.	. . . . .	. . . . .	. . . . .
Inventories:			
Raw material on hand		$	
Goods in process		. . . . .	
Uncompleted contracts	$		
Less payment on account	. . . . .	. . . . .	
Finished goods on hand		. . . . .	. . . . .
Other current assets:			
Marketable securities		$	
Indebtedness of officers, stockholders, and employees		. . . . .	
Indebtedness of affiliated companies (current)		. . . . .	. . . . .
Total current assets			$ . . . . .
Investments:			
Securities of affiliated companies		$	
Indebtedness of affiliated companies—not current		. . . . .	
Other (state important items separately)		. . . . .	. . . . .
Fixed assets.			
Land used for plant	$		
Buildings used for plant	. . . . .		
Machinery	. . . . .		
Tools and plant equipment	. . . . .		
Patterns and drawings	. . . . .		
Office furniture and fixtures	. . . . .		
Other fixed assets (describe fully)	. . . . .		
	. . . . .		
Total fixed assets		$	
Less—			
Reserves for depreciation, depletion, etc. (describe fully)		. . . . .	. . . . .
Deferred charges:			
Prepaid expenses, interest, insurance, taxes, etc.			. . . . .
Other assets (describe fully)			. . . . .
Total			$ . . . . .

When the balance sheet is that of a corporation, the State under whose laws

BY THE FEDERAL RESERVE BOARD

Liabilities

Notes and accounts payable:			
Secured liabilities—			
Obligations secured by—			
Customers' accounts assigned, to the amount of	$		
Liens on inventories	. . . . .		
Securities deposited as collateral	. . . . .		
Other collateral	. . . . .	$	
Unsecured notes—			
Acceptances made for merchandise or raw material purchases	$		
Notes given for merchandise or raw material purchased	. . . . .		
Notes given to banks for money borrowed	. . . . .		
Notes sold through brokers	. . . . .		
Notes given for machinery, additions to plant, etc	. . . . .		
Notes due to stockholders, officers or employees	. . . . .	. . . . .	
Unsecured accounts—			
Accounts payable for purchases (not yet due)	$		
Accounts payable for purchases (past due)	. . . . .		
Accounts payable to stockholders, officers, or employees	. . . . .	. . . . .	
Accrued liabilities (interest, taxes, wages, etc.)		. . . . .	
Other current liabilities (describe fully)	$	. . . .	
Total current liabilities		$	
Fixed liabilities:			
Obligations secured by—			
Mortgage on plant (due date)	$		
Mortgage on other real estate (due date)	. . . . .		
Chattel mortgage on machinery or equipment (due date)	. . . . .		
Other funded indebtedness (describe fully)	. . . . .	. . . .	
Total liabilities			$ . . . . .
Net worth:			
If a corporation—			
(*a*) Preferred stock (less stock in treasury)		$	
(*b*) Common stock (less stock in treasury)		. . . . .	
(*c*) Surplus:			
Capital or paid in	$		
Arising from revaluation of capital assets	. . . . .		
Earned (or deficit)	. . . . .	. . . .	. . . . .
If a person or a partnership—			
(*a*) Capital		$	
(*b*) Undistributed profits or deficit		.	. . . .
Total			$.

Contingent liabilities—classify and explain.
it is organized should be indicated.

FORM OF INCOME STATEMENT SPONSORED BY THE FEDERAL RESERVE BOARD

Gross sales		$	
Less outward freight, allowances and returns		.....	
Net sales			$ .....
Inventory beginning of year	$		
Purchases, net (or cost of goods produced)	.....	$	
Less inventory end of year		.....	
Cost of sales			.....
Gross profit on sales			$ .....
Selling expenses (itemized to correspond with ledger accounts kept)			
Total selling expenses		$	
General expenses (itemized to correspond with ledger accounts kept)			
Total general expenses		.....	
Administrative expenses (itemized to correspond with ledger accounts kept)			
Total administrative expenses		. . .	
Total expenses			.....
Net profit on sales			$ .....
Other income:			
Income from investments		$	
Interest on notes receivable, etc.		.....	.....
Gross income			$ .....
Deductions from income:			
Interest on bonded debt		$	
Interest on notes payable		.....	
Taxes, depreciation, etc. (separately shown)		.....	
Total deductions			.....
Net income for the period			$ .....
Add special credits to profit and loss (separately shown)			.....
			$ .....
Deduct special charges to profit and loss (separately shown)			.....
Profit and loss for period			$ .....
Surplus beginning of period	$		
Add or deduct items in the surplus account attributable to prior periods	.....	$	
Dividends paid		.....	.....
Earned surplus at end of period			$ ....

If a profit-and-loss statement is prepared for more than one year it should be set up in comparative form

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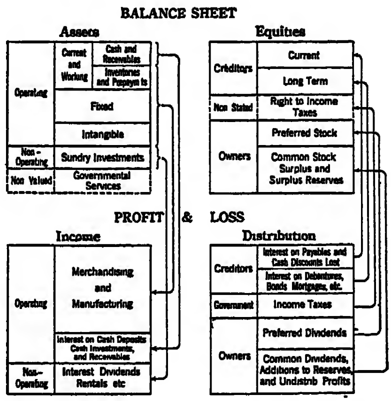
The income statement is a summary of the operating results over a given period of time—the various sources of revenue and the various sources of outgo, together with the final net results. Various other names are given it, among which are the following:

Profit and loss statement (or account)
Income account (or sheet)
Operating statement
Statement of operating results
Summary of income and expense
Statement of earnings
Statement of expense and revenue
Revenue statement
Statement of loss and gain

RELATION BETWEEN BALANCE SHEET AND INCOME STATEMENT

Greer in "How to Understand Accounting" indicates by means of a diagram, as shown opposite, how the items of the balance sheet and of the income statement are related to one another. Assets produce income, as noted, and the income is in turn distributed to those holding equities in the enterprise—that is to say, as interest to bondholders and other creditors, and dividends to stockholders.



LOCATING TRIAL BALANCE ERRORS

Errors in Posting.—The more common errors made in posting are:

1. Posting to wrong account
2. Transposition of figures in posting
3. Posting wrong amount
4. Posting to wrong side of the account
5. Posting the same item twice
6. Not posting the item at all

Unless offsetting errors exist, all but the first are disclosed by a trial balance. Whether or not the first is ever uncovered will

depend on (1) the nature of the accounts involved and (2) the thoroughness with which postings are rechecked. An amount posted to the wrong account receivable will usually be discovered by the customers when they examine their statements. An amount posted to the wrong nominal account will probably never be disclosed unless the postings are completely rechecked.

Procedure in Locating Errors.—The following procedure is suggested in Himmelblau, "Fundamentals of Accounting":

1. Determine the amount of the difference—it is useless to look for a difference unless its amount is known.
2. Refoot the trial balance—differences in a single figure or in two adjacent figures of the trial balance totals are often due to errors in footing.
3. Compare the ledger balances once more with the trial balance and at the same time foot the ledger columns since the last trial balance and subtract again for the present balance. Note any obscurity in the figures used in determining the preceding trial balance.

   When footing either the trial balance or the ledger accounts, it is well to remember that the same error in footing may be made twice. Hence, in refooting, it is desirable that the bookkeeper foot in a different manner—e.g., foot from the bottom up rather than from the top down, use an adding machine if the number of postings warrants, have some one else refoot the ledger, and so on.
4. See that the totals of books of original entry properly crossfoot and that these totals are all properly included in the trial balance accounts.
5. If the difference represents an apparent excess of debits over credits, some item may have been entered twice among the debits in the books of original entry. The latter should be examined for such a sum.
6. If the difference is divisible by two and represents an apparent excess of debits over credits, one-half of the amount may be looked for among credits in books of original entry, since such a credit, if posted as a debit, would cause a discrepancy of this nature.
7. A transposition is a reversal of two adjoining figures of an amount; \$86 00 posted as \$68.00 is an example. Transpositions always result in differences divisible by 9 and the quotient of that figure (neglecting zeros) divided by 9 is the difference between the transposed figures. Thus, in the example given, the difference (\$86.00 — \$68.00) \$18 00 divided by 9 gives a quotient

of 2 which, ignoring the zeros, is the difference between the transposed figures 6 and 8. The zeros in the quotient indicate how many columns to the left the transposed figures are. In the case given, the two zeros show that the transposition is between digits in third and fourth columns to the left.

8. Examine the folio columns of the books of original entry for posting references. Amounts without posting references should be traced immediately to the ledger.
9. Check the previous trial balance with ledger. An offsetting error, for example, may have been made in a prior month, part of which has been corrected subsequently either on the books or on the later trial balance. It may then be necessary to go back over a prior month's accounts.
10. After exhausting these and other devices that may come to mind, the only remaining method is to recheck completely the postings to the accounts which were made during the period following the last trial balance. The best procedure is to check from the book of final entry to the books of original entry, which is the reverse of the method followed in the original posting.
11. It is never safe to charge off a small difference because such a difference may really mean a large debit less a large credit, or vice versa. Only in exceptional cases is it practicable to carry a difference forward with the hope that it will right itself or be found in the indefinite future.

WORK SHEET AND CLOSING ACCOUNTS

For the purpose of incorporating the adjustments in the trial balance at the close of a period and of separating the accounts into two groups, namely, those which are to be summarized in the profit and loss and those which make up the balance sheet, a regular form is used known as the "worksheet." On pages 16-17 is presented an example of the work sheet for a manufacturing company, containing also two columns for the separation of the manufacturing cost items, with a view to their summarization in the cost of manufacture statement. The data needed for adjusting and closing the books are listed below:

1. Inventories:

Finished Goods	$30,000
Goods in Process	25,000
Raw Materials	22,000
Factory Supplies	1,000
Office Supplies	500

A Form of Working Sheet

Account Title	Trial Balance Dr.	Trial Balance Cr.	Adjustments Dr.	Adjustments Cr.	Manufacturing Dr.	Manufacturing Cr.	Profit and Loss Dr.	Profit and Loss Cr.	Balance Sheet Dr.	Balance Sheet Cr.
Cash	12,000 00								12,000 00	
Accounts Receivable	75,000 00								75,000 00	
Res. for Doubtful Accts		1,500 00		(10) 2,962 50						4,462 50
Fin. Goods Inv., Jan 1	25,000 00			(9) 25,000 00						
Goods in Pro Inv., Jan. 1	20,000 00			(2) 25,000 00	20,000 00	25,000 00				
Raw Mat Inv., Jan 1	30,000 00			(6) 30,000 00						
Investments	15,000 00								15,000 00	
Interest Income Accrued	150 00		(11) 75 00						225 00	
Factory Supplies	4,000 00			(4) 4,000 00						
Office Supplies	3,000 00			(5) 3,000 00						
Insurance Unexpired	4,800 00			(12) 300 00					4,500 00	
Plant and Equipment	1,800,000 00								1,800,000 00	
Depr Res Plant & Equip		36,000 00		(17) 12,000 00						48,000 00
Goodwill	50,000 00								50,000 00	
Accounts Payable		60,000 00								60,000 00
Interest Cost Accrued		281 25		(15) 187 50						468 75
Bonds Payable		75,000 00								75,000 00
Discount on Bonds	4,000 00			(16) 37 50					3,962 50	
Capital Stock		1,000,000 00								1,000,000 00
Premium on Capital Stock		12,500 00								12,500 00
Surplus		818,287 50								818,287 50
Sinking Fund Reserve		10,000 00								10,000 00
Sales		600,000 00						600,000 00		
Sales Returns & Allow	7,500 00						7,500 00			
Raw Materials Purchases	195,000 00			(7) 195,000 00						
Freight-In on Purchases	5,000 00			(8) 5,000 00						
Direct Labor	175,000 00		(13) 4,000 00		179,000 00					
Indirect Labor	50,000 00		(14) 1,000 00		51,000 00					
Salaries—Factory	10,000 00				10,000 00					
Plant Repairs & Main.	3,000 00			(20) 3,000 00						
Light, Heat, and Power	7,000 00			(19) 7,000 00						
Sundry Factory Expense	8,000 00		(4) 3,000 00		11,000 00					
Sales Salaries	75,000 00						75,000 00			
Advertising	9,000 00						9,000 00			
Sundry Selling Expense	10,000 00						10,000 00			
Office Salaries	15,000 00						15,000 00			
Sundry Office Expense	2,000 00		(5) 2,500 00				4,500 00			
Sales Discount	3,000 00						3,000 00			
Interest Cost	18 75						18 75			
Purchase Discount		3,900 00						3,900 00		
	2,617,468 75	2,617,468 75								

Inventories:										
Fin Goods, Jan. 31			(1) 30,000 00						30,000 00	
Goods in Proc, Jan 31			(2) 25,000 00						25,000 00	
Raw Materials, Jan 31			(3) 22,000 00						22,000 00	
Factory Supp, Jan 31			(4) 1,000 00						1,000 00	
Office Supp, Jan 31			(5) 500 00						500 00	
Cost of Raw Materials Used			(6) 30,000 00	(3) 22,000 00	30,000 00	22,000 00				
			(7) 195,000 00		195,000 00					
			(8) 5,000 00		5,000 00					
Cost of Goods Sold			(9) 25,000.00	(1) 30,000 00			25,000 00	30,000 00		
Depreciation										
Depreciation Plant and Equipment			(17) 12,000 00	(18) 12,000 00						
Bad Debts:										
Bad Debts			(10) 2,962 50				2,962 50			
Income Earned:										
Interest Income				(11) 75 00				75 00		
Expenses Incurred:										
Bond Interest Cost			(15) 187 50				187 50			
			(16) 37 50				37 50			
Insurance			(12) 300 00	(21) 300 00						
Accrued Expenses:										
Direct Labor				(13) 4,000 00						4,000 00
Indirect Labor				(14) 1,000 00						1,000 00
Factory Expense:										
Depreciation			(18) 9,000 00		9,000 00					
Light, Heat, and Power			(19) 5,600 00		5,600 00					
Plant Repairs & Maint			(20) 2,250 00		2,250 00					
Insurance			(21) 150 00		150 00					
Selling Expenses:										
Depreciation			(18) 1,500 00				1,500 00			
Light, Heat, and Power			(19) 490 00				490 00			
Plant Repairs & Maint.			(20) 375 00				375 00			
Insurance			(21) 120 00				120 00			
General Office Expense:										
Depreciation			(18) 1,500 00				1,500 00			
Light, Heat, and Power			(19) 910 00				910 00			
Plant Repairs & Maint.			(20) 375 00				375 00			
Insurance			(21) 30 00				30 00			
					518,000 00	47,000 00				
Cost to Manufacture						471,000 00	471,000 00			
							628,506 25	633,975 00		
Net Profit							5,468 75			5,468 75
	2,617,468 75	2,617,468 75	381,862.50	381,862 50	518,000 00	518,000 00	633,975 00	633,975 00	2,039,187 50	2,039,187 50

2 Estimate of doubtful accounts: ½ of 1% of net sales.

3. Estimate of depreciation of plant and equipment At the rate of 8% per year, to be allocated ¾ to manufacturing and ⅛ each to selling and general office.

4. Accrued interest income amounts to $75.

5. Unexpired insurance is $4,500.

6 Accrued direct labor is $4,000, indirect labor $1,000, and bond interest cost $187 50.

7. Prorate the following expenses departmentally:

   (a) Light, heat, and power, 80% to factory, 7% to selling, and 13% to office.

   (b) Plant repairs and maintenance, ¾ to factory and ⅛ each to selling and office.

   (c) Insurance, 50% to factory, 40% to selling, and 10% to office.

8 Amortize bond discount $37.50 for the month of January.

PRO-FORMA BALANCE SHEET—HOW PREPARED

Definition.—This is a hypothetical balance sheet drawn up to reflect all the adjustments arising from and incidental to certain proposed financial transactions. It is also called the "modified statement." It is often used in circulars issued by bankers when offering a company's securities for sale in order to show how it is proposed to employ the funds, and in that connection it is sometimes referred to as the "refinancing statement." It is also included in reports to stockholders, whose permission is sought for certain major transactions, such as readjustment of capital structure, reorganization into a new corporation, merger, and consolidation.

Procedure in Drawing up Pro-forma Balance Sheet.—The procedure involved in drawing up this type of balance sheet is indicated in Himmelblau, "Advanced Auditing," by the following illustration:

X. Y. Z. CORPORATION

BALANCE SHEET – DECEMBER 31, 19—

ASSETS		LIABILITIES	
Cash	$ 1,000	Bank Loans	$ 70,000
Receivables	15,000	Accounts Payable	40,000
Inventories	45,000	Capital Stock	20,000
Plant less reserve	89,000	Surplus	20,000
	$150,000		$150,000

It is proposed first, to sell $75,000.00 of first mortgage bonds at the price of 90; second, to retire $60,000.00 of bank loans; and third to appraise the properties. The sound value is taken to be $125,000.00.

The following journal entries reflect the foregoing proposed transactions:

Deferred Charges (Discount on Bonds) . . .		$ 7,500	
Cash		67,500	
First Mortgage Bonds . . .			$75,000
Bonds to be sold to Jones & Smith per contract dated			
....			
Bank Loans		60,000	
Cash			60,000
Bank Loans to be paid.			
Plant		36,000	
Capital Surplus			36,000
Sound appraised value at December 31, 1927 ..	$125,000		
Depreciated book value at same date is ..	89,000		
Increase	$ 36,000		

Posting the foregoing entries to the work sheet, we have the following:

X. Y. Z. CORPORATION

WORKING PAPERS – DECEMBER 31, 19—

ASSETS	Per Balance Sheet	Adjustments Debit	Adjustments Credit	Balance Sheet as Adjusted
Cash	$ 1,000	(1)$ 67,500	(2)$ 60,000	$ 8,500
Receivables	15,000	–	–	15,000
Inventories	45,000	–	–	45,000
Plant less Reserve	89,000	(3) 36,000	–	125,000
Deferred Charges	–	(1) 7,500	–	7,500
	$150,000			$201,000
LIABILITIES				
Bank Loans	$ 70,000	(2) 60,000	–	$ 10,000
Accounts Payable	40,000	–	–	40,000
First Mortgage . ..	–	–	(1) 75,000	75,000
Capital Stock	20,000	–	–	20,000
Surplus	20,000	–	–	20,000
Capital Surplus ...	–	–	(3) 36,000	36,000
	$150,000	$171,000	$171,000	$201,000

Arranging the data in the "as adjusted" column in conventional balance sheet form gives the balance sheet as of December 31, 19–, adjusted to reflect the new financing, which is as shown by the following:

X. Y. Z. CORPORATION

BALANCE SHEET – DECEMBER 31, 19—

(Adjusted to reflect proposed sale of $75,00 First Mortgage Bonds, proposed retirement of Bank Loans and appraisal of Plant)

ASSETS			LIABILITIES AND NET WORTH		
CURRENT ASSETS:			CURRENT LIABILITIES:		
Cash	$ 8,500		Bank Loans	$10,000	
Receivables	15,000		Accounts Payable	40,000	$ 50,000
Inventories	45,000	$ 68,500	FIRST MORTGAGE BONDS		75,000
PLANT (at sound value appraised by Brown & Co. as of December 31, 19–		125,000	NET WORTH		
			Capital Stock	$20,000	
			Capital Surplus	36,000	
DEFERRED CHARGES		7,500	Surplus	20,000	76,000
		$201,000			$201,000

Nature of Adjustments.—The following is a list of specific adjustments found by an examination of published pro-forma balance sheets:

1. Issuance of bonds. (This is one of the most common adjustments.)
2. Issuance of stock
3. Sale of property
4. Sale of securities owned
5. Liquidating notes payable
6. Liquidation of current liabilities
7. Retirement of bonds
8. Withdrawal of securities owned
9. Withdrawal of cash
10. Payment of stockholder's personal account
11. Advances to affiliated companies
12. Purchase of plant and inventories
13. Stock dividend
14. Elimination of book value of goodwill
15. Appraisal of goodwill
16. Appraisal of properties
17. Readjustment of capitalization

GENERAL RULES FOR CONSOLIDATION OF BALANCE SHEETS

The purpose of the consolidated balance sheet is to show the status of two or more affiliated concerns regarded as a unit. Before the accounts of the affiliated companies can be consolidated all inter-company accounts must be reconciled. Inter-company dividends and sales, and inter-company stock holdings must be eliminated. Elimination of inter-company stock holdings involve the following:

1. When the holding company acquires the subsidiary's stock at book value, its investment account is exactly offset by the par value of the capital stock and surplus of the subsidiaries. Both are eliminated.
2. If the holding company has paid less than the book value of the subsidiary's stock purchased, the excess represents a premium which is carried on the consolidated balance sheet as "Goodwill." Otherwise the two items are eliminated.
3. If the holding company has paid less than the book value of the stock of the subsidiary purchased, the difference is a contra to the "Goodwill" referred to in (2); or if there are no such intangible values to offset it, it may be shown as capital surplus.
4. Any minority interest must be shown separately in the consolidated balance sheet. This interest comprises the par value of the capital stock held by the minority stockholders plus undistributed surplus applicable to these holdings.

After all inter-company accounts are eliminated, the items extended into the "Consolidated Balance Sheet" column of the consolidated working sheet furnish the data necessary for the construction of the consolidated statement. The holding company is entitled to take up as profit or loss its share of any increase or decrease in a subsidiary's surplus subsequent to the date the controlling interest was acquired. On the following pages appears a consolidated working sheet showing the method of eliminating the inter-company items.

Consolidated statements, while they have definite advantages, also have certain shortcomings which must be allowed for in reading them. These are mainly due to the fact that in the process of consolidation the various companies as legal entities are disregarded.

A Form of Consolidated Working Sheet

Company A and Subsidiaries

Working Papers—December 31, 19–

	Company A		Company B		Consolidations	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Items for Adjustment and Consolidation:						
Assets:						
Cash	21,000		10,000		31,000	
Accounts Receivable	50,000	(2) 10,000	75,000		115,000	
Dividends Receivable	9,000	(4) 9,000				
Inventories	75,000		40,000		115,000	
Reserve for Intercompany Profits on Inventories				(6) 2,500		2,500
Investment in Company B (90%)	190,000	(7) 9,500 (8) 180,500				
Fixed Assets—Net of Depreciation	315,000		130,000		445,000	
Reserve for Intercompany Profits on Fixed Assets	(14) 1,800	(13) 18,000				16,200
Consolidated Goodwill			(5) 2,000 (12) 14,500		16,500	
Liabilities:						
Accounts Payable		25,000	(1) 10,000	50,000		65,000
Dividends Payable			(3) 9,000	10,000		1,000
Sundry Liabilities		95,000		10,000		105,000
Net Worth:						
Capital Stock—No-Par Common		400,000	(9) 135,000	150,000		(Ma) 400,000 (Mi) 15,000
Paid in Surplus			(10) 4,500	5,000		(Mi) 500
Earned Surplus	(13) 18,000 (7) 9,500	140,000 (14) 1,800	(6) 2,500 (11) 26,500	30,000 (5) 2,000		(Ma) 114,300 (Mi) 3,000
Section Totals	689,300	888,800	459,000	259,500	722,500	722,500

					Total Eliminations	
Items to be Eliminated:						
Intercompany Accounts—Current:						
Company A				(1) 10,000 (3) 9,000		10,000 9,000
Company B	(2) 10,000 (4) 9,000				10,000 9,000	
Totals	19,000			19,000	19,000	19,000
Intercompany Proprietory and Investment Items:						
Company B:						
Capital Stock—No-Par Common				(9) 135,000		135,000
Paid-in Surplus				(10) 4,500		4,500
Surplus—Earned				(11) 26,500		26,500
Stock of B Owned by A	(8) 180,500				180,500	
Surplus from Consolidation				(12) 14,500		14,500
Totals	180,500			180,500	180,500	180,500
Section Totals	199,500			199,500	199,500	199,500
Grand Totals	888,800	888,800	459,000	459,000	922,000	922,000

STATEMENT OF AFFAIRS AND DEFICIENCY ACCOUNT

The Statement Defined.—The statement of affairs is used in insolvency cases to show lists of all assets at their book values and also at the values which they might be expected to realize upon a forced sale. Against this showing of assets, an analysis is set up of all claims against the business by its outside creditors on the basis of their relative preferences—preference creditors, fully secured creditors, partially secured creditors, and unsecured creditors. A sample statement of affairs is shown below.

Deficiency Account.—It is customary to support the statement of affairs by a deficiency account, which is a statement of the losses expected to be incurred upon realization of the assets and must prove against the losses or deficiency as shown by the

A B C COMPANY—STATEMENT

Book Values	ASSETS	Items	Expected to Realize	Shrinkages
$ 3,000	Cash................................		$ 2,500	$ 500
250,000	Accounts Receivable:			
	Good................................	$100,000	100,000	
	Doubtful—worth 50%................	80,000	40,000	40,000
	Bad........................ $75,000			
	Less Reserve............... 5,000			
		70,000		70,000
		$250,000		
30,000	Claim Against Accommodated Party (Estimated to yield 50%)............		15,000	15,000
77,000	Merchandise..........................		50,000	27,000
70,000	Machinery..........................		20,000	50,000
	Securities Pledged with Creditors:			
	Partly Secured:			
55,000	Notes Receivable (Deducted contra).	$ 55,000		
	Fully Secured:			
75,000	Buildings..........................	$ 55,000		20,000
110,000	Land (at market)..................	125,000		*15,000
	Deducted contra................	$180,000		
30,000	X Y Co. Stock (at market)..........	$ 35,000		*5,000
	Deducted contra...............			
	Excess over Claims against it.....		10,000	
125,000	Goodwill............................	....		125,000
	Total Unpledged Assets................		$237,500	
	Less Preferential Creditors (see contra).		5,000	
	Net Free Assets for Unsecured Claims....		$232,500	
	Deficiency (see Deficiency Account)......		52,500	
$825,600			$285,000	$327,500

* Increments in value.

A B C Co. will be able to pay on the basis of the above showing, 81.6

statement of affairs. It bears the same relation to this latter statement as the profit and loss account does to the balance sheet. Below is presented an illustration of the deficiency account.

A B C COMPANY
DEFICIENCY ACCOUNT—DECEMBER 31, 193–

Estimated Shrinkages in Value:		Estimated Increments in Value:	
Cash	$ 500	Land	$ 15,000
Accounts Receivable	110,000	X Y Co. Stock	5,000
Claim against Accommodated Party	15,000	Capital Sunk:	
Merchandise	27,000	Capital Stock	250,000
Machinery	50,000	Surplus	25,000
Buildings	20,000	Net Deficiency to be borne by Creditors (see Statement of Affairs)	52,500
Goodwill	125,000		
	$347,500		$347,500

OF AFFAIRS, DECEMBER 31, 193–

Book Values	LIABILITIES		Items	Expected to Rank
	Unsecured Creditors:			
$249,000	Accounts Payable		$310,000	
	Less Partly Secured		61,000	
				$249,000
	Partly Secured Creditors:			
61,000	Accounts Payable		$61,000	
	Less Notes Receivable Held as Security		55,000	
				6,000
	Fully Secured Creditors:			
25,000	Notes Payable		$25,000	
	X Y Co. Stock Held as Security		35,000	
	Excess of Security Carried contra		$10,000	
175,000	Bonds Payable	$175,000		
5,000	Accrued Interest on Bonds	5,000		
			$180,000	
	Land and Buildings Held as Security		180,000	
	Contingent Liabilities:			
30,000	Accommodation Notes			30,000
	Maker, now bankrupt, will pay 50%			
	Preferential Creditors:			
1,500	Taxes		$1,500	
3,500	Wages		3,500	
	Deducted contra		$5,000	
250,000	Capital Stock			
25,000	Surplus			
$825,000				$285,000

cents on the dollar of all unsecured claims.

REALIZATION AND LIQUIDATION STATEMENT

The realization and liquidation statement presents a summary of a trustee's or receiver's administration of the affairs of a failed concern. New assets are acquired, new liabilities incurred, assets are sold, liabilities are liquidated, expenses are incurred, and income is carried; and at the close of a given period there are ordinarily balances of unrealized assets and unliquidated liabilities. All these activities are reflected in the realization and liquidation statement. Since the information shown is essentially a summary of the journal entries for a given period, the data can most

BLANK COR

REALIZATION AND

	Original	Acquired Under Receivership	Total
ASSETS TAKEN OVER.			
Cash (see Receiver's Cash Account)	$ 4,000	$221,000	$ 225,000
Accounts Receivable	120,000	80,000	200,000
Merchandise	60,000	70,000	130,000
Other Property	500,000	20,000	520,000
	$684,000	$391,000	$1,075,000
	Liquidated	Continued	Total
DISPOSITION OF LIABILITIES.			
Notes Payable	$ 70,000	$ 45,000	$ 115,000
Accounts Payable	100,500	42,000	142,500
Accrued Expenses	14,000		14,000
Bonds Payable		200,000	200,000
	$184,500	$287,000	$ 471,500
OPERATIONS OF THE RECEIVER:			
Expenses:			
Merchandise originally taken over	$ 60,000		
Purchases	70,000	$130,000	
Merchandise Returned to Owner		20,000	
Cost of Goods Sold		$110,000	
Profit on Sales (carried down)		21,000	
		$131,000	
Selling Expenses		$ 10,000	
Expenses of Receiver's Adm.		7,500	
Losses on Realization			
Accounts Receivable		25,000	
Other Property		6,000	$ 48,500
			$ 48,500
VALUES RETURNED TO OWNER:			
Cash		$ 500	
Accounts Receivable		75,000	
Merchandise		20,000	
Other Property		445,000	
			$ 540,500

easily be secured from column totals in journals, analyses of "Sundry" columns, etc. The statement may be prepared so as to show either the book or appraised values of original assets.

The realization and liquidation statement is usually accompanied by a "receiver's cash account," which presents the cash receipts and disbursements for the period, and a profit and loss account which shows something of the detail in connection with the gains and losses on realization as well as the income and expense items from operation. An example is given below.

PORATION

LIQUIDATION ACCOUNT

		Original	Acquired Under Receivership	Total
LIABILITIES ASSUMED.				
Notes Payable		$ 80,000	$ 35,000	$ 115,000
Accounts Payable		110,000	32,500	142,500
Accrued Expenses		14,000		14,000
Bonds Payable		200,000		200,000
		$404,000	$ 67,500	$ 471,500
		Disposed of	Continued	Total
DISPOSITION OF ASSETS:				
Cash (see Receiver's Cash Acct)		$224,500	$ 500	$ 225,000
Accounts Receivable:				
Amount Collected	$100,000			
Loss on Bad Debts	25,000	125,000	75,000	200,000
Merchandise:				
Sold for (see next section)	$131,000			
Profit on	21,000	110,000	20,000	130,000
Other Property:				
Sold for	$ 69,000			
Loss on	6 000	75,000	445,000	520,000
		$534,500	$540,500	$1,075,000
OPERATIONS OF THE RECEIVER:				
Income:				
Sales			$131,000	
			$131,000	
Profit on Sales (brought down)				$ 21,000
Rental				1,000
Decrease in Value of Business under Receivership				26,500
				$ 48,500
VALUES RETURNED TO OWNER.				
Notes Payable			$ 45,000	
Accounts Payable			42,000	
Bonds Payable			200,000	
				$ 287,000

TAKING THE PHYSICAL INVENTORY

Necessity for Physical Inventory.—Physical inventory refers to the actual count and determination of the materials and merchandise owned. All business concerns find it desirable to take physical inventories periodically. Perpetual inventories do not eliminate the need of physical inventories, since it is practically impossible to avoid errors and omissions in such records, and physical inventories are needed to correct and adjust such errors. The inventory may also be taken by the continuous method, by which a separate organization is responsible for a constant count, inspection, and report upon designated parts of the stock.

Suggestions Regarding Procedure.—In preparation for inventory taking each department should be fully informed concerning the scope and character of the work to be done. The purchasing department should be instructed to verify and pass on to the accounting department all invoices covering material received up to the inventory date, and to submit lists of all items in transit and of all materials received for which invoices were lacking at inventory date. All invoices in dispute should be promptly adjusted and passed to the accounting department. The general accounting department should be instructed to reconcile with the books all statements of accounts received from the vendors and to adjust any differences that exist between the vendors' accounts and the company's records. Lists of all goods billed prior to inventory date which are still awaiting shipment and of all goods out on consignment should be prepared. The department should see that all material transactions are properly recorded against the respective accounts and that the labor distributions are balanced with the payrolls and charged to the proper production orders. All price records should be brought up to date and all expense standing orders should be closed. Prior to closing the plant for inventory, the production department heads should see that all manufacturing orders are balanced with material so that there will be no orders in the plant not covered by material and no materials in plant not covered by orders.

No delivery or receipts of materials from plant should be permitted while the inventory is being taken. Shipments of goods should not be permitted while the plant is closed down for inventory. The storerooms should have all materials in their possession properly stored and labeled for easy identification and count.

GROSS PROFIT METHOD OF ESTIMATING INVENTORIES

Explanation of Method.—The gross profit or percentage method of estimating inventories is based on the assumption that for successive periods the gross profit margin is fairly uniform so that it is possible to estimate the cost of goods sold and thus arrive at an approximate figure for the inventory on hand. Sometimes an average gross profit per cent of two or more preceding periods may be taken as a better indication of what the current period's gross profit should be. When the average gross profit is determined, its amount, expressed as a per cent, subtracted from 100% gives estimated per cent of sales for cost of goods sold.

This method is never satisfactory for computing the value of inventories as a regular procedure, but may at times serve as a desirable check on the value placed on physical inventories. This method is particularly valuable in checking past inventories or in estimating the value of goods destroyed by fire when the only records available as to goods on hand at the time of the fire are the usual accounting records of sales and purchases, no stock records having been kept. The method is also applicable to the determination of inventories between the period at which physical inventories are taken. Thus, if inventories are taken annually, monthly inventories may be estimated, the average investment inventory throughout the year determined, and a more accurate rate of turnover computed.

Application of Method Illustrated.—The following shows the application of the method. A fire occurred April 10, destroying completely the stock of merchandise. From the owner's records the following information was secured: Inventory January 1, $40,000; net purchases to April 10, $100,000; net sales to April 10, $160,000; average gross profit for preceding two years, 40%. Find the approximate value of the goods destroyed. Solution:

Inventory January 1	$ 40,000 00	
Purchases	100,000.00	
Total stocks to be accounted for		$140,000.00
Deduct:		
Cost of Goods Sold:		
Sales to April 10	$160,000.00	
Cost multiplier (100% — 40% = 60%)	60	
Cost of Goods Sold		96,000 00
Estimated Inventory April 10		$ 44.000 00

RETAIL METHOD OF INVENTORY

Principles of Method.—The retail system of inventory is based on carrying all goods purchased at a retail sale price as well as at cost price. In the financial records purchases are always booked at cost. A stock record is kept, however, which carries purchases at retail sale price as well as at cost price. The principle of the perpetual inventory under this method is shown by the fundamental formula:

Opening Inventory + Purchases — Cost of Goods Sold = Final Inventory

If all the values on the left side of the equation are retail sale values, the right side of the equation represents the final inventory valued at the retail sale price. Thus, if the opening inventory for use in the stock record is set up at the marked sale price, and purchases are similarly set up, the subtraction of the sales to date from the sum of the opening inventory and purchases gives the amount of stock on hand valued at the sale price.

Reduction to Cost Basis.—In order to reduce an inventory, valued at retail sale price, to a cost basis, the per cent of mark-on of the cost price to give the original sale price must be applied. This per cent is based on the sale price and not the cost price, being determined by dividing the difference between sale and cost price (that is, the gross profit figure) by the sale price. Thus, a commodity costing $60 and marked to sell at $100 will, if sold, yield a gross profit of $40 which, given in terms of the sale price, is a 40% gross profit. This 40% is spoken of as the "mark-on per cent." The cost is, therefore, the difference between 100% and the per cent of mark-on, in this case 60%. That is, 60% of the sale price gives the cost price. This 60% is the cost multiplier.

Accordingly, to reduce the inventory value at selling price to a cost price basis, it must be multiplied by 100% minus the per cent of mark-on, i.e., by the cost multiplier.

Stock Record.—The use of the retail method thus requires a stock record from which the goods on hand as valued at selling price can be determined almost instantly and from which the per cent of mark-on can also be determined. In principle the method is simple. In practice it must be operated very carefully, else unreliable results will be secured. It seldom happens that merchandise will always move at the marked sale price. Adjustments are necessary. On an upward market, perhaps, a higher

price can be secured than the marked price. On a downward market or in order to move certain colors and styles, it may be necessary to mark down from the original sale price.

INVENTORY INVESTMENT AND TURNOVER

In establishing the minimum necessary inventory investment, all factors relating to the business should be considered. The stock should be sufficient for production needs and to meet normal demands of customers. It should also allow a fair margin of safety for delays, strikes, breakdowns, and the like.

Determining Investment.—Establishment of a minimum inventory investment involves consideration of the following:

The amount of finished goods that should be in stock to insure prompt deliveries to customers. This will in turn depend, first, upon the sales budget, and second, upon any difference between the inventory at the beginning of the budget period and the estimated inventory at the close of the period.

Completeness of assortment, parts, sizes or kinds ("balanced" inventory).

The time which elapses between ordering and receipt of merchandise.

The types of merchandise used, that is, staples, specialties, novelties, or seasonal goods.

Obsolete and slow-moving merchandise.

Excessive or disproportionate quantities.

The storage and stock space available.

Overproduction or scarcity at sources of supply.

Rising or falling market due to general business conditions.

The production period or the time required in each process of manufacture. The limiting factor of manufacturing is usually found in some one process. The aim should be to have production distributed more or less evenly throughout the period so as, first, to utilize plant to capacity and thus minimize investment in plant; second, to give regular employment, especially to skilled workers; and third, to replenish the finished goods only as required so as to keep down the investment in that stock.

Time required to ship merchandise from stock.

Material necessary to produce single unit.

Quantities of merchandise usually sold in a given time.

Quantities scheduled to be sold through special effort or sales campaign.

Market conditions in regard to demand and competition.

Margin of safety.

Inventory Turnover.—The turnover of inventory is used to measure the relative efficiency with which the inventory investment is managed. This is the ratio of the volume of sales for a period to amount of the inventory and expresses the rapidity with which stocks of goods are sold out and replenished. The more rapidly inventory is turned over, the smaller is the amount of capital tied up in inventories to handle a given volume of business, and the larger will be the return earned on the capital, for with each turnover a margin of profit is realized and discounts are earned. The turnover is figured by dividing the average monthly inventory investments into either the sales or the cost of sales for the year. Whichever basis is adopted—sales or cost of sales—it should be consistently used in order to make comparisons between periods valid.

METHOD OF INCORPORATION

Incorporation takes place under general state statutes. Some statutes relate to special types of corporations such as banks, railroads, etc., while others cover general types of corporations for which no specific statutes exist. The charter or certificate of incorporation constitutes the formal authority from the state for the existence of the corporation. All that is usually necessary in order to incorporate a business is to file with the secretary of state of the state in which incorporation takes place an application for a certificate of incorporation, or, in some states, the articles of incorporation, with a request for their approval. The information which must usually be shown on the articles of incorporation is as follows:

1. Name of corporation—must not conflict with names of other corporations registered in the state and may have to be in a certain form.
2. Nature of business to be conducted—a corporation may be formed for any purpose not specifically forbidden by statute.
3. Amount, kinds, number of shares, and par value of capital stock to be employed in the business.
4. Amount of paid-up capital and manner in which initial stock is to be paid up.
5. Location of principal office—must be within the state where firm is incorporated. This refers to the principal corporate office—the principal business office may usually be elsewhere.

6. Duration—may be limited or perpetual. In some states a maximum life is specified.
7. Name and addresses of the first directors. A minimum number and qualifications as to age, residence, etc., are usually specified. The election of a board of directors requires a preliminary meeting of the incorporators
8. Names and addresses of incorporators The statutes usually prescribe the minimum number and qualifications as to age, residence, citizenship, etc. Generally any one can be an incorporator who is capable of contracting and holding property in the state under whose laws a corporation is to be created.

Upon receiving the approval of its articles of incorporation by the proper official, usually the secretary of state, and upon receiving the express or implied acceptance of the charter by the stockholders, the legal existence of the corporation begins. Certain fees and taxes may have to be paid at this time and a copy of the articles must usually be filed with a county official.

POWERS OF A CORPORATION

The powers of a corporation are obtained from the general corporation statutes and from the articles of incorporation. The general powers granted to a corporation are as follows:

1. To sue and be sued under its corporate name. The name of a corporation must always be used in order to create enforceable contracts in favor of or against the corporation. The name may be changed by amendment to the certificate of incorporation without affecting the corporate entity.
2. To use a seal. A corporation must use a seal only when a sealed contract would be required of an individual or when required by its by-laws.
3. To buy, sell, and hold property. In some states this right is restricted to property pertaining to the business of the corporation.
4. To appoint directors, officers, and agents.
5. To make by-laws.
6. To dissolve itself. In most states only a certain majority vote of the stockholders is required to permit dissolution.
7. To do all proper things necessary to carrying out the business of the corporation.

DOMESTIC AND FOREIGN CORPORATIONS

A corporation is a domestic corporation in the state in which it was incorporated. If it operates in another state it is a foreign corporation in that state. Corporations created outside of the United States are known as alien corporations.

A corporation operates outside its domicile, i.e., the state of its origin, only by courtesy of the other states. Foreign corporations are usually subject to special regulations, taxes, and restrictions, and may be excluded entirely as far as intrastate business is concerned, but interstate commerce cannot be prohibited by the states. That is, a state could not prevent a corporation of another state from selling goods within the state providing its factories, stores, and offices were outside of the state.

CORPORATE BY-LAWS

The by-laws adopted by a corporation regulate its internal affairs. They must be consistent with public policy, with the constitution and statutes of its domicile, and with its certificate of incorporation. They bind the stockholders, officers, and directors of a corporation. Others must have actual notice before being bound by them.

The usual details provided in by-laws relate to the following:

1. Stockholders' meetings
2. The number, term of office, qualifications, special powers, meetings, committees, etc., of directors
3. The election, term of office, qualifications, powers and duties, resignations, salaries, etc., of the executive officers
4. The issuance and transfer of stock
5. The corporate finances
   - (a) Fiscal year
   - (b) Working capital and reserves
   - (c) Bank deposits and loans
   - (d) Signatures and indorsements to checks, notes, etc.
   - (e) Dividends
   - (f) Regulations as to debt
6. Sundry by-law provisions
   - (a) Offices of the company
   - (b) Corporate seal
   - (c) Enforcement and amendment of by-laws

(d) Inspection of books
(e) Surety bonds
(f) Execution of contracts
(g) Waiver of notice of meetings

STOCKHOLDER'S PROXY

Stockholder's right to vote by proxy is given by constitutional or statutory provision. The conditions of voting by proxy may be prescribed by the by-laws, if reasonable and not at variance with statutory law or charter. A form of proxy for a special meeting of stockholders is shown below:

PROXY FOR SPECIAL MEETING OF THE STOCKHOLDERS OF
THE BLANK CORPORATION

I, THE UNDERSIGNED, a stockholder of The Blank Corporation, hereby make, constitute and appoint . . and or either of them, my true and lawful attorney and proxy with full power of substitution and revocation, for me and in my name, place and stead, to attend, and represent me at the special meeting of the stockholders of The Blank Corporation to be held on the . day of , 19 , and all adjournments thereof, and thereat to vote upon all stock held or owned by me in all matters, and for the transaction of any and all business, that may come before the said meeting as fully and with like effect as I could if personally present and voting, hereby ratifying and confirming all that my said attorneys, or either of them, may do or cause to be done in the premises.

Dated . 19 .

. .. .
Stockholder

Signed in the presence of:

.. . .

NOTICE FOR SPECIAL MEETING OF STOCKHOLDERS

Special meetings of stockholders usually require to be called by the president, or upon the order of the board of directors, or upon request, generally in writing, of a certain percentage of the stockholders. The business to be transacted at a special meeting must be specifically set forth in the notice. A form of notice for a special stockholders' meeting is shown below.

THE BLANK CORPORATION

NOTICE OF SPECIAL MEETING OF THE STOCKHOLDERS

Notice is hereby given that a special meeting of the stockholders of The Blank Corporation will be held at the principal office of the company at 298 South LaSalle Street, Chicago, Illinois, on Friday, the 25th day of November, 19–, at one o'clock P. M., for the purposes of:

(a) Considering and voting upon certain proposed amendments of the articles of incorporation;
(b) Considering and voting upon certain proposed amendments of the by-laws;
(c) Considering and voting upon a proposed issue of One Million Dollars ($1,000,000.00) of Ten-Year First Mortgage Bonds of the corporation to be secured by an Indenture of Trust, to certain individuals as Trustees, covering the property of the corporation now owned and hereafter acquired to the extent described in the said Indenture;
(d) Executing, if consent to the mortgage shall be voted, such consents in writing and duplicates thereof, and in such form, as are required by law; and
(e) Transacting any and all such other business as may come before the said meeting.

Being a majority of the Board of Directors of The Blank Corporation.	....
	....
	....
	....
	.

MINUTE BOOK OF A CORPORATION

To preserve a record of the meetings of the directors and stockholders, and the business transacted thereat, use is made of a minute book kept by the secretary of the corporation. This book, as the source of authority for all the important acts and policies of the corporation, is a most important record. The record should be a complete history of the corporation from its organization through the entire period of its existence. Usually the first entries in this book, which is often a loose-leaf volume, are a copy of the corporation's charter and of its by-laws. The actions recorded in the minute book are usually in the form of resolutions which are adopted or rejected by vote. The essentials of minutes of directors' meetings are the statements in successive order of:

1. The fact of the meeting, i e., that it "was held."
2. The place, hour, day, and date.
3. The notice or its equivalent, i.e., that it was held:
   (a) Without notice, pursuant to a by-law provision, (1) when immediately following the adjournment of the annual meeting, or (2) when all the members of the board were "then and there present in person"; or
   (b) Without further notice (notice or its equivalent previously existing), when resumed pursuant to, and at the place, hour and day stated in, a resolution of adjournment adopted at a previous meeting; or
   (c) Pursuant to waiver of notice: (1) when notice was waived by all of the members of the board, or (2) when notice was waived (in writing signed before the hour of the meeting) by those members of the board (necessarily a minority of the whole number) not present; or
   (d) Pursuant to notice given: (1) personally, or (2) by telegraph, or (3) in writing (by mail or delivery in hand);
4. The competency of the meeting to transact business, i e :
   (a) How many (and who) were present in person, and
   (b) How many (and who) were absent.
5. The business transacted·
   (a) By votes upon motions made and seconded upon the matter to be acted upon; and/or
   (b) By votes upon motions made and seconded upon the adoption (or rejection) of a resolution proposed concerning the matter to be acted upon; and/or
   (c) By order or decision of the presiding officer made or given "in the absence of objection "
6. Adjournment:
   (a) Upon a motion to adjourn *sine die;* or
   (b) Upon the adoption of a resolution to adjourn to a stated hour and day and a designated place.

CORPORATION CALENDAR

As a reminder of those formal corporate matters which must be attended to on certain dates, the corporation secretary prepares and carries forward a book, a card, or a card index of memoranda chronologically arranged, which relate to the filing of reports and returns to governmental bodies, notices of stockholders' and directors' meetings, and other matters of corporate concern. This is known as the "corporation calendar." The general plan suggested in the "Financial Handbook" is as follows:

Corporation Calendar

Fiscal and Calendar Year 1934

January:

6th – Annual report due (for state of incorporation) first Tuesday.
21st – Directors' meeting—adjourned from December 3, 1933 (without further notice).

February:

12th – Notice of Directors' meeting, 18th.
18th – Directors' meeting.
21st – Prepare and mail annual report (for state where licensed as a foreign corporation) due before March 1st under penalty for failure to file.
28th – Last day to mail annual report.

March:

4th – Close transfer books.
5th – Arrange extension (if necessary) for income tax return for 1933.
14th – Mail notices of annual meeting of stockholders. Prepare statutory list of stockholders.
15th – Last day to file United States return of income for 1933 (unless extension granted). First instalment of tax due.
Last day to file state income tax for 1933.
25th – Annual meeting of stockholders
Meeting of board of directors (election of officers).

April:

1st – File schedule of property with assessors.
10th – Mail call ordered by directors for last instalment of subscriptions of increased common stock voted October 8th, 1933.
20th – Check assessment of franchise tax (in state where licensed as foreign corporation) on the basis of proportion of capital (or capital stock) employed.
24th – Notice of directors' meeting, 28th.
28th – Directors' meeting.

May:

20th – Notice of directors' meeting, 26th.
26th – Directors' meeting.

June:

1st – File capital stock report with Tax Commission.
15th – Second instalment of United States income tax due.
17th – Notice of directors' meeting, 23rd.
23rd – Directors' meeting.

July:

1st – Pay state franchise taxes during July.
22nd – Notice of directors' meeting, 28th.
28th – Directors' meeting.
31st – Last day to pay state franchise taxes without penalty.

OPENING BOOKS OF A CORPORATION

The opening entries of a corporation have to do with the treatment of capital stock—authorized, issued, and unissued—subscriptions, calls, and instalments, payments by cash or by property. Kester ("Principles of Accounting") illustrates three different methods of opening the books as follows:

First Method

Case 1. Where subscription and payment are not simultaneous:

(a)	Subscribers	$150,000	
	Capital Stock Subscriptions		$150,000
	To record subscriptions to the capital stock as follows: A . . . shares B " C " Etc.		
(b)	Cash	150,000	
	Subscribers		150,000
	To credit subscribers for the payment of their subscriptions.		
(c)	Capital Stock Subscriptions	150,000	
	Capital Stock		150,000
	To record the issue of stock to all subscribers who have paid in full.		
(d)	Organization Expense	1,000	
	Cash		1,000
	To record the payment of the costs of organizing the corporation.		

Case 2. Where the subscription and payment are simultaneous:

(a)	Cash	$150,000	
	Capital Stock		$150,000
(b)	Organization Expense	1,000	
	Cash		1,000

Second Method

(a)	Unissued Capital Stock	$250,000	
	Capital Stock Authorized		$250,000
(b)	Subscribers	150,000	
	Capital Stock Subscriptions		150,000
(c)	Cash	150,000	
	Subscribers		150,000
(d)	Capital Stock Subscriptions	150,000	
	Capital Stock		150,000
(e)	Capital Stock Authorized	150,000	
	Unissued Capital Stock		150,000

Third Method

(a) Unissued Capital Stock	$250,000	
Capital Stock		$250,000
(b) Subscribers	150,000	
Subscriptions		150,000
(c) Cash	150,000	
Subscribers		150,000
(d) Subscriptions	150,000	
Unissued Capital Stock		150,000

VOTING TRUSTS AND CORPORATE CONTROL

A voting trust is a contractual device frequently employed in connection with the ownership of corporations whereby all or a majority of the holders of voting stock surrender their control of the corporation for a certain term of years to a body of several trustees. The object of the trust is to concentrate control of the corporation in the hands of a few individuals, usually from three to seven, who will adopt and continue certain administrative policies in behalf of bondholders, underwriting bankers, creditors, or the stockholders themselves. Their tenure of control over a certain period of years will prevent instability and uncertainty in the management and administration of the corporation that might otherwise result if control were scattered among thousands of stockholders.

By the voting trust agreement, stockholders who subscribe to it assign their shares to the trustees and receive in exchange voting trust certificates evidencing their claim to their respective number of shares when the trust is terminated. By this exchange the trustees become the legal owners of the stock, which is transferred to their names as trustees on the books of the company, and vote the stock in the election of directors and otherwise exercise the full power of stockholders unrestricted or restricted, according to the terms of the agreement. The holders of the voting trust certificates, as beneficiaries of the trust, are entitled to all dividends paid by the company on the stock except such portion as the trustees may be authorized by the agreement to retain in order to defray their expenses in the administration of the trust and to compensate themselves for their services. If the corporation declares a stock dividend, the trustees receive the additional stock, issuing additional trust certificates.

SUBSCRIPTION BOOKS

Subscription Book.—This is a book of original entry in which are recorded the names and addresses of the subscribers, and the number and par value of the shares subscribed by each. A separate subscription book is kept for each class of capital stock.

Subscription or Instalment Ledger.—In this book an account is kept for each subscriber, showing as debits the amounts of the subscriptions and as credits the amounts received on account of the various subscriptions. As soon as the stock is full-paid, there is no further current use of this ledger.

STOCK CERTIFICATE BOOK

This book is a bound record containing perforated sheets, one or more of which is filled out with the name of the stockholder and the number of shares the certificate represents. The certificates are removed at time of issuance, being sent to the stockholders as evidence of their interest in the proprietorship of the corporation. A stub for each certificate remains in the book. Canceled certificates are pasted to their corresponding stubs. Consequently the outstanding stock is represented by the "open" stubs in the certificate book.

Each certificate has an assignment form printed on the back. When the owner wishes to surrender title he usually signs "in blank," thus making the certificate transferable by delivery. Legal title, however, remains in the former owner until transfer is made on the corporation's book. A split consists in having a stock certificate canceled and two or more issued for the same aggregate number as were represented by the original certificate; or when two or more certificates are surrendered and one is issued in their place.

The stock certificate book is kept by the secretary. If changes of ownership of stock are frequent it is customary to appoint a "transfer agent" (usually a trust company) to attend to the details of the transfers.

STOCKHOLDERS' LEDGER

The stockholders' ledger is a record of the account with each shareholder, containing entries for shares issued and transferred.

The stockholder is credited with the shares issued and is debited with the shares transferred. In some states the stockholders' ledger is required to be kept. In a few states it is held to be the book from which the right of the stockholder to cast votes for the number of shares owned by him shall be determined as to the number of such votes. The stock certificate or the transfer book may be used as a journal from which to post to the stockholders' ledger. The balances are brought down to each stockholder's account after a transfer is made. A typical form of stockholders' ledger (from "Financial Handbook") follows.

Form of Stockholders' Ledger

James D. Henderson,
700 Lincoln Street,
Chicago, Ill

Date	Transfer Page	Certificate Number	Shares Dr.	Shares Cr.	Cr. Balance
19—					
Jan 7..........	Original	27		1,716	1,716
" 25	217	92		192	1,908
Feb. 2...........	229	92	100		1,808
Apr. 27	241	416		80	1,888
July 9	263	27	16		1,872
Sept 16	280	519		90	1,962
Dec 30 . .	314	416 & 519	170		1,792

STOCK TRANSFER BOOK

This book is employed to record transfers of shares of stock. Such transfers merely require an adjustment between the accounts of individual stockholders in the stock ledger. The general ledger accounts are not affected because the total amount of stock outstanding remains unchanged. Usually there are from two to six transfer forms on each page. The transfer book is a journal containing the original entries necessary to adjust the accounts and to record the following information:

(a) Date of transfer
(b) Kind of stock transferred
(c) Numbers of certificates surrendered
(d) Numbers of certificates issued in exchange
(e) Number of shares
(f) Name of transferor
(g) Name of transferee

PREEMPTIVE RIGHT OF SHAREHOLDERS

When additional shares are issued by a corporation, they must first be offered, with certain exceptions to existing shareholders in proportion to their holdings, usually in the form of stock rights or subscription privileges, and only those not taken by the shareholders may be sold elsewhere. This right to the first opportunity to purchase additional stock, which is known as the preemptive right, aims to protect shareholders against the dilution of their existing interest in corporate assets and earnings and of their proportionate voting power. The right, however, may be abolished by statute, charter provision, or may be waived by vote of the stockholders.

ESTIMATING BAD DEBTS

Methods of Estimating Bad Debts.—According to the "Accountants' Handbook," there are two principal methods of estimating uncollectibles at the close of the fiscal period. First, all customers' balances may be appraised, one by one, and the accounts deemed bad or very doubtful written off entirely or scaled down. The second method consists in estimating a blanket allowance based largely upon past experience. Under this method individual accounts are later charged against this allowance as their worthlessness is demonstrated. A combination of these two methods may also be employed.

The first method may be employed to advantage in the case of concerns with relatively few but large credit customers. It has obvious objections where there are a large number of comparatively small balances. The second method has been developed to avoid these difficulties.

A classification of receivables into three groups, good, doubtful, bad, is sometimes attempted at the close of the period. This implies a valuation of specific accounts in so far as the good and bad groups are concerned, but postpones final decision on all doubtful cases. In this case the blanket reserve is applicable, strictly, only to the doubtful group.

Aging of Accounts.—In connection with the estimate of bad debts a classification and analysis of past-due accounts is advisable. For this purpose columnar sheets may be used, columns being headed, for example:

1. Less than 30 days past due
2. 30–60 days past due
3. 60–90 days past due
Etc.

Terms of sale—particularly with reference to discounts—should be considered in determining a basis for classification which will be of real value to interested executives.

Appraising Particular Accounts.—Even if a periodic adjustment is made in whole or in part on the basis of a blanket estimate it is necessary eventually to appraise the particular balance, if it is not collected within a reasonable period. In this work the main general considerations are as follows:

1. Length of time account has run
2. Customer's practice with respect to discounts
3. Trend of the account
4. General character of dealings with customer
5. Credit ratings and similar data
6. Special investigations and reports

Usually the customer's balance is good, doubtful, or bad in its entirety. However, partial collection may occur in certain cases, particularly where one or more of the charges involved is in dispute.

Bases of Estimating Allowance for Bad Debts.—Assuming the method of blanket estimate for uncollectibles, the principal problem to be dealt with is the selection of a base and the determination of a percentage rate to be used. The principal bases upon which such an allowance may be calculated are as follows:

1. Volume of account sales
2. Total sales
3. Accounts receivable outstanding

The first of these is to be recommended, notwithstanding the fact that both of the others are used to some extent, as what is desired is the percentage of credit business which ordinarily proves to be uncollectible. The second basis is substantially the same as the first where there are few cash sales. The second basis may also be reasonable where credit conditions are fluctuating with the result that the volume of account sales is not comparable from period to period.

The third basis should seldom if ever be used. The balance outstanding fluctuates from period to period in terms of other factors than credit sales, and in the case of a short accounting period some of the same charges may appear in the balances of two or more successive periods. The amount appearing in the allowance or reserve account from time to time can best be interpreted as an offset to the total of customers' balances outstanding; but it does not follow that the periodic addition to the reserve can be most accurately estimated by applying a regular percentage to the outstanding balance. Where the allowance is calculated from the standpoint of "doubtful" accounts only, however, it may be expedient to work out a rate which can be applied directly to the total of doubtful accounts outstanding in determining the allowance.

ADJUSTMENTS OF ACCOUNTS RECEIVABLE

Types of Adjustments.—These adjustments are in effect deductions made from the invoice value of accounts receivable so as to make the account approximate more closely its real value. The more common forms of adjustment are as follows:

1. Bad debts
2. Cash discounts taken by customers
3. Sales returns, allowances, price adjustments, etc.
4. Cost of services to be rendered free to customers
5. Transportation charges, which are not prepaid but are deducted from the invoice by the customer, who sends the freight bill along with his remittance for the balance
6. Losses from guaranteeing customers against price declines
7. Collection costs
8. Containers to be returned for credit by customers
9. Unearned interest on receivables

Method of Adjustment.—The adjustments are made by way of anticipating future losses, and because the amounts of those future losses can only be estimated, the adjustments are effected by setting up reserves, which are simply offsets to, or deductions from, the asset account, Accounts Receivable, the charges being made to an appropriate expense account. Thus, a reserve for bad debts is credited for the estimated amount of the uncollectible accounts carried on the books, while the charge is made to Bad Debts treated as a General Administrative expense. Subse-

quently, as individual accounts prove to be uncollectible, they are charged off against the Reserve for Bad Debts. Similar treatment may be accorded the other adjustments. For methods of estimating bad debts, see "Estimating Bad Debt Losses," above.

STATEMENT OF CUSTOMER'S ACCOUNT

This is a statement rendered periodically, usually the last of the month, to each customer whose account shows a debit balance. Frequently the date of sending the statement is recorded

STATEMENT OF ACCOUNT

New York, N. Y.,

Mr. J. P. Norton,
1031 Blvd. F, Saratoga, Va.

In account with

D. COHEN & COMPANY

Manufacturers of Ladies' Waists and Suits

19— May	1	Balance	$ 325	40		
	5	Mdse. per bill rendered	1,000	—		
	14	" " " "	575	60		
	17	" " " "	121	25	$2,022	25
		CR.				
	4	Cash	$ 500	—		
	10	Mdse. ret'd. per credit memo	50	75		
	20	Note	1,000	—	1,550	75
		Balance due			$ 471	50

in the explanation column of the ledger account—a desirable practice from the credit viewpoint.

The statement of account is a transcript or sometimes a summary of the customer's ledger account, containing all the charges and credits for the period covered. If there is a balance outstanding at the beginning of the month, the current statement opens with the balance item and is followed by lists of all

charges, payments, and other credits for the current period. The total credits are subtracted from the total charges and the balance constitutes the amount now due and owing. Sometimes a statement of account is made out in detail, giving a copy of the original invoices which evidence the several sales transactions. Statements of accounts are issued in many different forms, but the one opposite (from Kester's "Principles of Accounting") shows all the essentials.

NOTE REGISTER—FORM AND USE

The notes receivable journal or register is a special journal in which to record essential data pertaining to notes receivable transactions. The book may be used merely as a memorandum record for carrying the detailed explanation of the journal entry; or it may be used as an integral part of the accounting system, from which the ledger is posted. The use of this special journal is advisable when note transactions are numerous. A typical form of notes receivable register is shown on the following page. If the register is for memorandum use only, the "Amounts Credited Columns" may be omitted from the register.

The notes payable register differs but slightly from that for notes receivable register.

ACCOUNTING FOR NOTES RECEIVABLE DISCOUNTED

In order to show on the books the contingent liability on notes receivable which are discounted, the method of journalizing a note discounted transaction is as follows:

Cash	$xxx	
Interest Cost	xxx	
Notes Receivable Discounted		$xxx

At maturity when the note is paid by the maker to the one holding, the following entry is made by the one who had discounted it:

Notes Receivable Discounted	$xxx	
Notes Receivable		$xxx

The effect of the first entry is to set up a suspense account, Notes Receivable Discounted, representing the contingent liability on the discounted note. The effect of the second entry is,

Notes Receivable Register

NOTES RECEIVABLE

DATE RECEIVED	DATE ISSUED	No	FROM WHOM RECEIVED	AMOUNTS CREDITED				DEBIT		WHEN DUE													TIME		RATE	
				Customer	LF	Interest	LF	Notes Receivable	LF	Year	J	F	M	A	My	J	Jy	A	S	O	N	D	Mo	Ds	%	

NOTES RECEIVABLE

	MAKER	PAYEE	INDORSERS	WHERE PAYABLE	FOR WHAT RECEIVED	HOW DISPOSED					
						Date	Amount Collected	Date	Amount Discounted	Interest & Discount	

(Left and right-hand pages)

first, to cancel the credit of the Notes Receivable Discounted account, so as to show that the contingent liability has ceased; and second, to cancel the original debit to the Notes Receivable account, made at the time the note was received. Usually no formal notice is received of the payment of the note by the maker, but as an indorser is promptly notified of any dishonor of a note, the fact that no such notice has been received is proof that the note has been paid.

The two accounts, Notes Receivable and Notes Receivable Discounted, must be considered together, as the latter account represents a deduction from the former. In other words, the amount of notes receivable on hand is the amount shown by the Notes Receivable account less the amount shown by the Notes Receivable Discounted account.

INSTALMENT BASIS OF ACCOUNTING FOR INSTALMENT SALES

Significance of "Instalment Basis."—The accounting for instalment sales is not necessarily different from accounting for other sales. However, the regulations of the Treasury Department for income tax purposes, which permit the use of the "instalment basis" of reporting taxable gross income from such sales, have induced many taxpayers to make use of the special plan in handling instalment accounts. Under the instalment basis, one who regularly sells on the instalment plan may return as income in any taxable year that proportion of the instalment payments actually received during that year which the gross profit (sales less cost of goods sold) realized or to be realized when the property is paid for, bears to the total sale price. In effect, this means the recognition of gross margin only in terms of collection, and under this plan instalment accounts receivable become essentially memorandum charges rather than valid assets, and if introduced into the accounting system proper are offset by a special contra account.

General Entries Required under Instalment Basis.—The following example from the "Accountants' Handbook" illustrates the entries. Assume that a radio dealer sells sets on the instalment plan during his first period of operation to the gross amount

of $25,000; that the merchandise cost of these sales is $12,500; that a deposit of 10% is required in all cases on delivery; that instalments collected (exclusive of down payments) amount to $15,000 in the first period; that two customers default on sales amounting to $250 each after making the initial payment only, and that in one of these cases the set is recovered and taken back into stock at $125, the other set being lost. In summarized form the necessary entries substantially in accord with the scheme originally outlined by the U. S. Treasury Department, are as shown below:

(1)		
Instalments Receivable Control	$25,000	
(Also individual accounts)		
Instalment Revenue Deferred		$12,500
Merchandise Purchases		12,500
To record making of contracts and delivery of sets.		
(2)		
Cash	2,500	
Instalments Receivable Control		2,500
(Also individual accounts)		
To record collection of down payments.		
(3)		
Instalment Revenue Deferred	1,250	
Instalment Revenue Realized		1,250
To recognize realized margin on down payments.		
(4)		
Cash	15,000	
Instalment Receivable Control		15,000
(Also individual accounts)		
To record collections other than down payments.		
(5)		
Instalment Revenue Deferred	7,500	
Instalment Revenue Realized		7,500
To recognize realized margin on collections.		
(6)		
Instalment Revenue Deferred	225	
Merchandise Recovered	125	
Loss from Defaults	100	
Instalments Receivable Control		450
(Also two individual accounts affected)		
To record defaults and recovery of one set.		

The charge to the deferred revenue account in entry (6) is the amount of such revenue applicable to the two contracts defaulted which has not already been recognized as realized. The use of a special merchandise account to record recovered goods is desir-

able, especially where the goods recovered are damaged, although such special account should presumably be closed later to regular stores or merchandise accounts. The loss from defaults is offset in a measure by the item of $25 of revenue realized on the down payments of the parties defaulting, which gives a net loss of $75. This may be checked as follows:

Cost of merchandise		$250
Cash collected	$ 50	
Value of goods recovered	125	175
Loss on defaults		$ 75

The balance in the deferred gross revenue account is now $3,525, which is just 50% of outstanding instalments, $7,050. It should be noted that in the example the percentage of gross margin to sales is assumed to be the same on all instalment business.

The instalment gross revenue realized for the period in the example is evidently $8,750, which is 50% of the cash collections of $17,500. Against this amount there is a special loss of $100 to be charged, to say nothing of other expenses.

TURNOVER OF RECEIVABLES

The turnover of receivables expresses the relationship between the outstanding receivables and the volume of sales, and is used to measure the relative economy and efficiency realized in handling the investment tied up in customers' accounts. The more rapid the turnover the smaller are the capital requirements of the business so far as this particular investment is concerned, and the greater efficiency shown in the collection of accounts. The turnover is usually expressed by stating the number of days of average sales outstanding in customers' accounts. If the customers' accounts outstanding amount to $200,000 and the average daily sales are $3,000, the turnover is 66 days. The average sales may be figured on the basis of 313 business days in the year. The rapidity of turnover depends partly on the terms of sale. If it is 50 days when the terms of sale are 60 days net, the indications are of efficient collection methods, providing most of the customers do not take advantage of the discount offered for cash payment. On the other hand, if the turnover is considerably in excess of 60 days it may either be evidence of lax collection methods or may simply be due to the general condition of business, in which case collections generally are slow.

LEGAL REMEDIES IN SALE OF GOODS

The seller's remedies are as follows:

1. If the goods are not delivered and title has not passed, the seller may rescind the contract and sue for damages.
2. If the goods are not delivered and title has passed, the seller has a lien on the goods if they were not sold on credit, or if the credit terms have expired, or if the buyer becomes insolvent before delivery.
3. If the goods are delivered and title has not passed, the seller may repossess the goods, and sue either for the price or damages.
4. If the goods are delivered and title has passed, the seller can only sue for damages; he cannot reclaim the goods.

The buyer's remedies are as follows:

1. If the goods are not delivered and title has not passed, suit may be brought for damages.
2. If the goods are not delivered and title has passed, the goods may be recovered by the proper proceeding, or damages may be sued for.
3. If the goods are delivered or tendered and there has been a breach of warranty, buyer may—
   (a) Accept the goods, and deduct the amount of damages from the price or sue for breach of warranty.
   (b) Rescind the contract, returning any goods received and recovering any payment made.

DISTRIBUTION ACTIVITIES AND COSTS

Divisions of Distribution Process.—The distribution function may be broken down into a number of subdivisions of functional activity. These may differ in various enterprises according to the character of the distribution obtained and an activity of importance in one enterprise may be subordinate in another. In general, however, distribution may be said to consist chiefly of activities of the four types:

1. Creating demand—that is, arousing effective desire on the part of the customer for the product which the enterprise has to sell, through advertising, promotion, solicitation, etc.
2. Obtaining orders—that is, converting this demand into a specific agreement for the purchase of the product, through contact by salesmen or otherwise.

3. Handling and delivery—that is, conducting the physical operations incident to storing, sorting, grading, packing, loading, shipping, transporting, and delivering the product.
4. Realizing on the sale—that is, arranging credit terms, billing, posting, preparing statements, collecting, handling, and depositing cash, with which may be included for convenience other clerical work in connection with sales record-keeping generally.

Subdivision of Main Distribution Function.—A list of subfunctions which may be found in an industrial enterprise of substantial size, and a similar list for a retailing organization, such as a department store, as given in "Accountants' Handbook," are set forth below.

Distribution Functions—Manufacturing Enterprise

CREATING DEMAND
- Advertising—space
- Radio programs
- Direct mail
- Catalogs
- Samples
- Shows and demonstrations
- Contests, prizes, etc.
- Publicity
- Dealers' helps—displays, etc.
- Dealers' helps—material for distribution to customers
- Supervision of advertising and promotion

OBTAINING ORDERS
- Salesforce services
- Salesforce equipment, supplies, etc.
- Salesforce travel
- Mail and telephone solicitation
- Exhibits, sample rooms, etc.
- Supervision of salesforce

HANDLING AND DELIVERY
- Storage at distribution points
- Handling in warehouses
- Breaking bulk or case lots, etc.
- Picking stock to fill orders
- Packing
- Loading
- Shipping
- Outbound transportation
- Preparing invoices and shipping documents
- Pricing invoices
- Extending and footing invoices
- Traffic and claims administration
- Supervision of storage and handling
- Supervision of clerical work

CREDITS AND COLLECTIONS
- Credit investigation
- Recording and posting sales invoices
- Recording and posting cash collections
- Preparing statements for customers
- Other customers' ledger work
- Outside collection expense
- Credit insurance
- Supervision of credits and collections

GENERAL SALES MANAGEMENT
- Planning, budgeting, etc.
- Market analysis and research
- Experimental sales development work
- Sales analyses and reports
- General supervision of distribution activities

Distribution Functions—Retail Enterprise

Purchasing
- Buyers' services
- Buyers' expenses

Stock Carrying
- Insurance, taxes, etc.
- Loss from shortages
- Loss from damage, shop-wear, etc.
- Loss from style changes, etc. (mark-downs)

Occupancy
- Store operation
- Store maintenance
- Store fixed cost
- Warehouse operation
- Warehouse maintenance
- Warehouse fixed cost

Publicity
- Advertising (space)
- Direct mail
- Window displays, etc.
- Premiums, etc.

Selling
- Salesforce services
- Salesforce supplies, etc.

Handling
- Receiving stock
- Inside handling
- Filling orders
- Packing
- Loading

Delivery, etc.
- Truck and wagon operation
- Hired cartage
- Freight, express, parcel post
- Installation
- Servicing

Administration
- Receiving records
- Stock records
- Billing
- Accounts receivable records
- Credits
- Collections
- Expense records
- General accounting
- Corporate expenses
- Outside services
- General administration

BILL AND CHARGE SYSTEM OF HANDLING SALES

By this name is known the method of writing up the customer's bill and using it as the basis for the charge to his account. The system is operated somewhat as follows: The duplicate sales tickets go to the auditing department, where they are first sorted by departments to secure the departmental analysis of the sales, and then re-sorted according to customers. Thus, if a customer has made purchases in more than one department, the tickets covering all his purchases are brought together. Each customer's monthly bill or statement of account is started at the beginning of the month on a folded bill-head perforated at the fold, the duplicate or under portion usually being somewhat wider, with loose-leaf binder punchings. On these bill and duplicate blanks the charges for the day are entered from the sorted sales tickets. This work is usually done on a billing machine with carbon roll or with carbon paper insertion.

At the end of the day, the total amount of the charges entered on all monthly statements is either found by means of an adding machine or is indicated by the "tally strip" of the billing machine. This total must be equal to the aggregate amount of all sales tickets for that day, thus proving the work of billing clerks.

Customers' bills, after entry each day, may either be passed on to the bookkeepers who charge each customer's account with the day's total purchases as shown by the bill, or the bills are returned to the file until used again for subsequent purchases. In such case the bookkeeper enters the total monthly charge to the customer's account only once a month. Returned goods and allowances are also entered on these customers' bills, but in a separate column or on another portion of the sheet. The total charges entered on these statements must check against the total credit sales for the month, thus proving the additions of the bills.

At the end of the month, the bill is torn from its duplicate and is passed to the bookkeepers. They enter the previous month's balance, if there is one, and the current payments on account, and extend the amount now due. After bills or statements have been mailed to the customers, duplicate bills are filed away, being virtually the detail of the ledger account, for use in case of dispute.

This method of handling credit sales provides a ready means of getting the bills out on time, of assuring agreement between the ledger accounts and the bills, of freeing the ledger accounts of unnecessary detail, and of checking the total billings against the total sales tickets.

ACCOUNT SALES IN CONSIGNMENT TRANSACTIONS

The account sales is a summarized statement, rendered to the consignor of goods by the consignee, of all transactions connected with a particular consignment. Upon completion of his service with respect to a consignment the consignee must make a strict accounting of his transactions to his principal, the consignor. This takes the form of an account sales, which must show the account or quantity of goods received, the sales made, the expenses incurred, and the balance due to the consignor. This latter amount may be either remitted immediately or credited to the consignor's account, according to the terms of their contract. The usual form of account sales is shown on the following page.

ACCOUNT SALES

of fruit received via Seaboard Air Line, from

H. C. CLONEY, BRADENTOWN, FLA.,

to be sold for his account and risk

RENDERED BY GAYNOR & GAYNOR, 21 WHITEHALL ST., NEW YORK, MARCH 5, 19

19–						
Feb.	2	Received:				
		250 bxs. oranges @ $ 3.75	$937	50		
		100 " lemons @ 4.25	425	—	$1,362	50
		SALES				
Feb.	3	100 bxs. oranges @ $ 4.50	$450	—		
		75 " lemons @ 4.40	330	—		
	5	150 " oranges @ 4.75	712	50		
		25 " lemons @ 5.00	125	—	$1,617	50
		CHARGES				
		Freight & Cartage	$ 50	—		
		Commission 5%	80	88	130	88
		Net proceeds by check enclosed			$1,486	62
		E. & O. E.				

INVOICE FOR GOODS SOLD OR PURCHASED

When a merchant sells goods to a customer, he prepares an itemized "bill," which is forwarded with the goods to the customer. From the seller's viewpoint it is a sales invoice, and from the customer's or buyer's viewpoint it is a purchase invoice. It is an itemized statement of goods bought or sold, and should show the names of vendor and vendee, the address of the vendor and the date of sale, the quantities, kinds, and prices of goods, the terms of sale, additional information as to method of shipment, etc.

A typical form, known as the simplified invoice form, is shown on the opposite page. When goods are bought, the purchase invoice should be verified or audited, the method of auditing depending upon the organization of the business.

Simplified Invoice

SIMPLIFIED INVOICE

[YOUR Name, Address and Trademark Go Here]

CUSTOMER'S ORDER NO. & DATE	784 9/5/19—	REFER TO INVOICE NO.	40933
REQUISITION NO.	28,453	INVOICE DATE	10/8/19—
CONTRACT NO.	12,580	VENDOR'S NOS.	AC48786

SOLD TO
John Duncan
894 Pacific Street
Portland, Ore.

SHIPPED TO AND DESTINATION	Same. Portland, Ore.		
DATE SHIPPED	10/8/19— FROM N.Y.City	PREPAID OR COLLECT?	Collect
CAR INITIALS AND NO.	NP897,643 F.O.B.		
HOW SHIPPED AND ROUTE	Fast Frt. N.Y.C.		
TERMS	2/30, n/60		

FOR CUSTOMER'S USE ONLY

REGISTER NO. 13279	VOUCHER NO. 4281
F. O. B. CHECKED R.T.S.	
TERMS APPROVED CEW	PRICE APPROVED RK
CALCULATIONS CHECKED BWC	
TRANSPORTATION 238576 FREIGHT BILL NO.	$38.72 AMOUNT
MATERIAL RECEIVED 10/24/19— DATE	JAD SIGNATURE Rec. Cl. TITLE
SATISFACTORY AND APPROVED	
ADJUSTMENTS	
ACCOUNTING DISTRIBUTION Shoes	
AUDITED CCH	FINAL APPROVAL MCE

QUANTITY				DESCRIPTION	UNIT PRICE	AMOUNT
Case	1	24	pr.	Cf Blu C1784H	4.80	115.20
"	1	24	"	PG Oxfords A-E4390L	5.25	126.00
"	2	36	"	W. St Sand. AA-C07862K	3.85	138.60
				Total		379.80

PROPER FORM OF CONTRACTS

Any contract may be expressed orally unless required by statute to be in writing. Most states have laws patterned after the English Statute of Frauds, enacted in 1676, which provide for written contracts in a number of specific cases. In order to be enforceable the following agreements must be in writing, although these contracts are valid if carried out without a written agreement:

1. Promises of an executor or administrator to pay out of his personal estate debts due from the estate he is administering.
2. Contracts which by their terms cannot be completely performed within one year from the making thereof.
3. Promises to answer for the debt, default or miscarriage of another. If one debtor is merely substituted for another—a novation—

the statute does not apply and such a contract need not be in writing.

4 Promises made with marriage as the consideration, except that the mutual promise to marry does not have to be in writing. That is, when marriage is the consideration for the payment of money, the transfer of property, etc., the agreement must be in writing in order to be enforceable.
5. A contract for the sale of personal property over a fixed amount unless part of the goods is accepted by the buyer, unless a payment is made to bind the bargain, or unless the goods were made to order.
6. Contracts for the sale of lands, or any interest in or concerning lands. Leases for less than one year are usually excepted.
7. A promise to pay a debt discharged in bankruptcy and, in some states, the ratification of an infant's contract.

ASSIGNMENT OF CONTRACTS

Assignment may be forbidden in the contract itself and it may be made with the approval of both parties. Otherwise, if nothing is said or agreed upon one way or the other, the following rules hold true. Rights to money or goods under an existing contract may be assigned by one party without permission of the other. Rights to personal services or rights coupled with personal confidence or liability cannot be assigned. Liabilities under a contract also cannot be assigned.

The assignee gets only the assignor's rights and is subject to whatever defenses might have been set up against the assignor. The assignee must see to it that the other party to the contract has definite notice of the transfer of the rights in order to hold him liable in case he has settled with the assignor.

MISCELLANEOUS TERMS AND DEFINITIONS RELATING TO CONTRACTS

Affirmative Contract. The agreement gives one party the right to demand that the other do something.

Negative Contract. The agreement gives one party the right to demand that the other refrain from doing something.

Express Contracts. The contract is put into words, either verbally or in writing, rather than being implied from the acts of the parties.

Executed Contracts. The object of the contract has been performed.

Executory Contracts. When one party (unilateral) or both parties (bilateral) have not completed their performance of the contract.

Parol or Simple Contracts. All oral contracts and all written contracts not under seal nor of record.

Contracts of Record. Contracts made before a court of record —judgments and recognizances. A recognizance is an obligation entered into before a court of record, undertaking to do or not to do a certain thing. Deeds, mortgages, etc., which, after being acknowledged before a notary public, are filed or recorded in the office of registry for record for the particular locality, are also contracts of record.

Void Contracts. Agreements in which one or more of the necessary elements of a contract is absent. They are really not contracts and the expression is a misuse of terms.

Voidable Contracts. A voidable contract is one which is binding on one of the parties but is capable of being rejected or accepted at the will of the other.

Condition Precedent. Something to be performed before the other party can be required to do his part. It is sometimes called an executory condition.

Condition Subsequent. A condition attached to a contract the fulfillment of which will discharge the obligation.

Joint and Several Contracts. In a joint contract all the parties on one side agree to be liable together for what is promised in the contract, each one being bound for the whole. They must be sued together. If one party is released all are released. If one party dies the survivors carry the full liability. In a several contract each of the parties agrees to be separately liable for his part. When the parties are both jointly and severally liable the person with whom the agreement was made has his choice of holding all of them liable together or each one liable separately. Where the contract itself does not expressly state whether the parties are to be liable separately or all together for the whole contract, the court decides the nature of the contract from the probabilities of the case.

BILL OF EXCHANGE AND ACCEPTANCE

Under the Uniform Negotiable Instruments Act, "A bill of exchange is an unconditional order in writing, addressed by one person to another, signed by the person giving it, requiring the person to whom it is addressed to pay on demand, or at a fixed or determinable future time, a sum certain in money, to order or to bearer." Below is given an example of a bill of exchange.

A simple promissory note has only two parties, the maker and the payee, and the maker pays it. A bill of exchange, on the other hand, has three parties, the maker (also called drawer), the payee, and the one to whom it is addressed and who pays it, called acceptor or drawee. The acceptor, upon the presentation

Bill of Exchange

$100.00 Chicago, Illinois, January 25, 19___

Thirty days after date___ Pay to order of

R. Peterson & Company___

One Hundred and no/100___ Dollars

Value received, and charge to the account of

To Davis Supply Company
Chicago, Illinois

(Signed) A. Brown

No. 1 Due February 24, 19___

ACCEPTED
DAVIS SUPPLY COMPANY
JANUARY 27, 19___

of the bill, accepts it by writing across the face of the bill the word "Accepted" together with the signature and the date. By that act he assumes responsibility for its payment. Prior to acceptance the bill has no value and no entry for it is made on the books. After acceptance it may be treated as a simple note by both the acceptor and the payee.

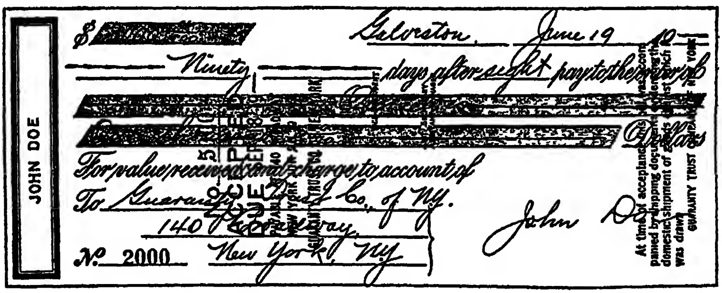
BANK ACCEPTANCE

Bank acceptance is defined by the Federal Reserve Board as "a draft or bill of exchange, whether payable in the United States or abroad, and whether payable in dollars or some other money, of which the acceptor is a bank or trust company, or a firm, person, company or corporation engaged generally in the business of granting banker's acceptance credit."

The buyer's credit may not be satisfactory enough and seller may refuse to extend him credit by drawing a time draft on him.

In such a case the buyer may arrange an acceptance credit with a bank, under which the seller will be authorized to draw his draft, running for a certain period, on the bank which will assume direct liability on it by accepting it, that is, by writing across its face, "Accepted, Due ——— 19—" and signing it. Such an acceptance the seller can usually dispose of, either to his own bank or in the open market without any difficulty and at a low rate of discount. The buyer in his arrangement with the accepting bank has agreed to reimburse it for the required amount before the acceptance comes due. For the service of accepting the draft the bank charges a fee equal to a fraction of 1% of the face amount of the draft. Bank acceptances are used chiefly in foreign trade. A specimen bank acceptance is given in the following illustration.

Bank Acceptance



CERTIFIED CHECKS

To certify a check an officer or teller of the bank stamps or writes upon its face the word "Good," "Accepted," or "Certified," and affixes his signature. By this means the bank signifies that it will honor the check if properly indorsed when presented for payment. Certification transforms an ordinary check, which is merely an order on the bank, to a bank's promise to pay, and as such it is not subject to non-payment because of stop-payment orders, insufficient or uncollected funds, or other non-apparent defects. The account of the drawer of the check is charged at the time the check is certified. Should he find that he cannot use it, he can indorse and deposit it in his own account regardless of who the payee of the check may be. Certified checks are used

to a great extent in paying taxes, license fees, and other obligations to the government, deposits required in connection with sealed bids, in real estate, stock and bond transactions, etc

SIGHT DRAFTS AND THEIR DEPOSIT

A sight draft is a bill of exchange that is payable "at sight," that is, upon presentation to the drawee, the one to whom it is addressed. The accounting for sight drafts is dependent upon whether a payment by the drawee can be reasonably expected.

When merchandise is shipped with sight draft drawn on the consignee and attached to a bill of lading, trade custom requires payment of the draft before the bill of lading is released to the consignee. In such cases banks will accept sight drafts as cash, and they can, therefore, be treated as a cash receipt by the payee. The drawer treats it as a cash disbursement when payment is made.

When custom does not require banks to give immediate credit for sight drafts deposited with them, the entry in the cash book should be deferred until the draft is collected. For example, when it is desired to collect a customer's account, a draft is sometimes drawn on the customer and given to the bank for collection. If the bank sends notice that payment has been received, cash is debited and the account of the drawee is credited, any expenses of collection being charged to "collection expense" or similar account.

TRADE ACCEPTANCE AND ITS USE

The trade acceptance is defined as "a time draft or bill of exchange drawn by the seller of goods on the buyer for the purchase price, and accepted by the buyer, payable on a certain date at a designated place." The seller of goods draws a 30, 60, or 90-day draft on the buyer for each transaction or group of transactions, according to the terms of sale. The draft is forwarded to buyer for acceptance and he accordingly writes across its face, "Accepted (date), payable at ——— Bank," signs it, and returns it to the seller. The draft, now called a trade acceptance, or merely acceptance, the seller may hold until maturity or may take it to his bank for discount. By latter method he obtains use of funds which are otherwise, locked up in open accounts.

TRADE ACCEPTANCE

TRADE ACCEPTANCES ARE APPROVED BY { NATIONAL ASSOCIATION OF CREDIT MEN / AMERICAN BANKERS ASSOCIATION

RECOMMENDED BY THE AMERICAN ACCEPTANCE COUNCIL.

No.________ ________19__ $________

________ after date pay to the order of OURSELVES

________ Dollars.

THE OBLIGATION OF THE ACCEPTOR HEREOF ARISES OUT OF THE PURCHASE OF GOODS FROM THE DRAWER. THE ACCEPTOR MAY MAKE THIS ACCEPTANCE PAYABLE AT ANY BANK, BANKER OR TRUST COMPANY IN THE UNITED STATES WHICH HE MAY DESIGNATE.

To________

____

Due________19__

ACCEPTED ________ PAYABLE AT ________ LOCATION ________

By________

DETACH BEFORE RETURNING ACCEPTANCE

A TRADE ACCEPTANCE

Is an acknowledgment of a debt by the buyer in favor of the seller, for merchandise that the seller had placed in the hands of the buyer. The buyer agrees, in writing across the face of this acceptance his name, the name and location of his own bank and the date, to pay the amount of this certain indebtedness at a certain time at his own bank.

This varies from the open book account method only in giving the debt a negotiable value.

According to a FEDERAL RESERVE BANK GOVERNOR'S OPINION, the signing of an Acceptance increases the financial standing of the giver, because it shows prompt paying methods.

Kindly fill in attached Acceptance above, on red lines across form and then forward to us.

SEE REVERSE SIDE

SELLER RETAINS THIS PORTION

NAME________ ADDRESS________ PAYABLE AT________ CITY________ DATE DUE DATE AMOUNT $ COVERING INVOICES $ DISCOUNTED AT________ NET PROCEEDS $ REMARKS:

BANK CERTIFICATES OF DEPOSIT

A bank certificate of deposit, in the usual form, is an instrument executed by a bank in acknowledgment of the receipt of a sum of money on deposit, which the bank promises to pay to the party named in the certificate or to his order, with or without interest. It is in legal effect a promissory note and is governed, in most respects, by the same general rules. Certificates of deposits are of two classes: (1) demand certificate which is payable

at any time at the option of the holder, and (2) time certificate, which is payable at a stated time—30, 60, 90 days, six months, or a year after date. Deposits evidenced by certificates have no legal preference over the ordinary deposits of a bank, and can be withdrawn only by surrendering the certificate properly indorsed. Certificates of deposit may be negotiable or non-negotiable. If a negotiable certificate is destroyed or lost, the depositor can secure payment by filing with the bank a bond of indemnity, usually for twice the amount of the lost certificate. In the case of the loss of a non-negotiable certificate, no bond is required.

BANK OVERDRAFTS

Bank overdrafts are caused by depositors checking against their accounts for more than their balances. They are in the nature of irregular loans made without security or interest charge, which the depositors impliedly agree to repay on demand. Although it is quite within the power of a bank to honor an overdraft check it is not obliged to do so, and when the bank does, it is as a pure accommodation made to the depositor. Usually the depositor is immediately advised of the overdraft with the expectation that he will at once rectify the deficiency. Many states have laws which make it a serious legal offense to draw a check on a bank where funds are insufficient to pay it. Unintentional overdrafts are frequently occasioned by delayed credits for items deposited and still in process of collection. In such cases banks usually honor the checks if the overdrafts which they cause are not for large amounts and the customer is not in the habit of overdrawing his account.

BANK DEPOSITOR'S RIGHT OF SET-OFF

It is an almost universal rule of law that when a bank has failed, a depositor who is at the same time indebted to the bank, has the right to declare his obligation due immediately, to set his deposit off against it, and be liable only for any remaining difference. The same rule applies in the case of an indorser or guarantor of a note held by the bank in case the maker of the note is insolvent. He may use his deposit in canceling a like amount of his liability on the note.

WAREHOUSE RECEIPT AND CREDIT EXTENSION

A warehouse receipt is an acknowledgment of a warehouse company that it has received certain goods for storage, which it will deliver in accordance with the terms set forth on the warehouse receipt. The Uniform Warehouse Receipt Act provides for negotiable and non-negotiable warehouse receipts. A negotiable warehouse receipt states that the goods will be delivered to the bearer, or to a designated person on his order. A non-negotiable warehouse receipt states that the goods covered by it will be delivered only to the person specified in it.

Banks make advances on the security of warehouse receipts representing commercial goods, and the amount depends upon the nature of the goods and the relative stability of their prices, the margin of safety, or the excess of the current value of the commodities over the amount of the advance, varying from 10% to 25%. Arrangements may be made, in the case of such advances, to withdraw part of the goods covered by the warehouse receipt by the payment of a satisfactory portion of the loan. Such withdrawals are generally indorsed on the warehouse receipt. Arrangements may also be made for the substitution of one commodity for another of equal value as collateral for merchandise loans.

PURPOSES AND USES OF BUDGETS

The budget is the master plan of operations and finance for a stated period of time. It consists of careful estimates of the probable amount of business the company will do during the period and the amount of expenditures which will be required in the various operating departments for materials, supplies, labor, services, general factory and other expense, additional equipment, etc., in order to complete the volume of business forecast most economically and yield the greatest profit.

Purposes and Uses of Budgets.—The purposes and uses of budgets may be summarized as follows:

1. As an aid to executives in controlling the various functions of the business, especially as a means of concentrating attention upon:
   (a) A single coordinated plan of sales, production, expenses, and finance.

   (b) The factors responsible for failure of the business as a whole to operate profitably, to the end that operating results may be improved by reference to the elements of prospective income and expense.
2. As an aid to management in promptly effecting elimination or reduction of operating expenses.
3. As a basis for study of the elements of income and possible means of improvement.
4. As a basis for adoption of financial policy.
5. For credit purposes, as a basis, in conjunction with financial and operating statements, for obtaining bank loans or other credits, or for justification of continuance of existing loans or lines of credit.
6. For specific management problems, as for example:
   (a) Study of need for additional plant or equipment facilities, or for their curtailment.
   (b) For determination of policy as to investment in or advances to subsidiary companies, as well as to operating policies thereof.
   (c) Effects of production policies upon costs.
   (d) Regional or divisional sales operations and expenses.
   (e) Departmental operation.
   (f) Control of purchases.

Nature and Scope of Budgeting.—Budgeting procedure involves three essential features:

1. Formulating a comprehensive plan.
2. Procedure for getting the plan in operation.
3. Checking the actual operating results against the budgeted amounts.

The plan itself is called the budget. Budgetary control, as distinguished from the budget itself, deals with the adoption and enactment of the plan, defining and establishing standards of performance, securing adherence to the plan throughout the organization and comparing the estimates with actual results.

The essential requirements for the preparation of a budget are:

1. Statement of policies.
2. Adoption of policies by the policy-making agency.
3. Coordination of the organization for enforcing policies.
4. Statement of future accounts expressed in terms of units of responsibility.
5. Up-to-date accounting system which will furnish proper reports promptly and accurately whenever needed.

MONTHLY PRELIMINARY SALES ES IMATE

FOR THE ONTH OF______________

ARTICLE	TERRITORY I				TERRITORY II				TOTAL			
NAME OR NO	LAST YEAR	BUDGET	ACTUAL	INC OR DEC	LAST YEAR	BUDGET	ACTUAL	INC OR DEC	LAST YEAR	BUDGET	ACTUAL	INC OR DEC

TERRITORIAL SALES ESTIMATE SUM ARY

TERRITORY______________

FROM______________
TO______________

ARTICLE	JANUARY		FEBRUARY		MAR ER		TOTAL	
NAME OR NO	BUD-GET	AC-TUAL	BUD-GET	AC-TUAL	BUD-GET	AC-TUAL	BUD-GET	AC-TUAL

Once the company has adopted a definite policy and has decided to place in operation a system of budgetary control, the first steps involved in the installation are:

1. Determining length of the budget period.
2. Fixing responsibility for preparation of estimates.
3. Fixing responsibility for reports.
4. Determining method of enforcing budgets.
5. Securing cooperation of executives and employees.

Departmental Budgets.—In the formulation of the general budget plan, estimates of income and outgo and other expense are prepared in the various departments, as follows:

1. Sales
2. Selling expenses
3. Advertising
4. Production
5. Materials
6. Labor
7. Manufacturing expenses
8. General expenses
9. Plant and equipment
10. Purchases

In practically all budget preparation the sales plan is of primary importance, inasmuch as all other departmental budgets are based upon the volume of business planned for. Provision is made in the forms to show the sources of revenue as represented

MANUFACTURING EXPENSE SUMMARY BUDGET

FROM__________TO__________

EXPENSE ACCOUNT NO.	EXPENSE ITEM	DEPARTMENT NO..........		DEPARTMENT NO..........		DEPARTMENT NO	
		BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL

by the various articles sold and the territories in which they are sold, the amount budgeted for each article in each territory, and the amount actually realized in each case. (See page 67.) Com-

parison of the actual with the previously estimated amounts furnishes the basis for budgetary control.

The other detailed budgets are concerned with expenditures and expenses not involving actual expenditure of funds, as depreciation. On the opposite page is shown a form designed for the manufacturing expense budget setting forth a comparison, by departments, of the budgeted and the actual amount of each item of expense.

Summarized Budgets.—These budgets comprise the following estimates:

1. The estimated income statement, or the forecast of the operating results of the business as a whole.
2. The estimated cash receipts and disbursements.
3. The result and balance sheet.

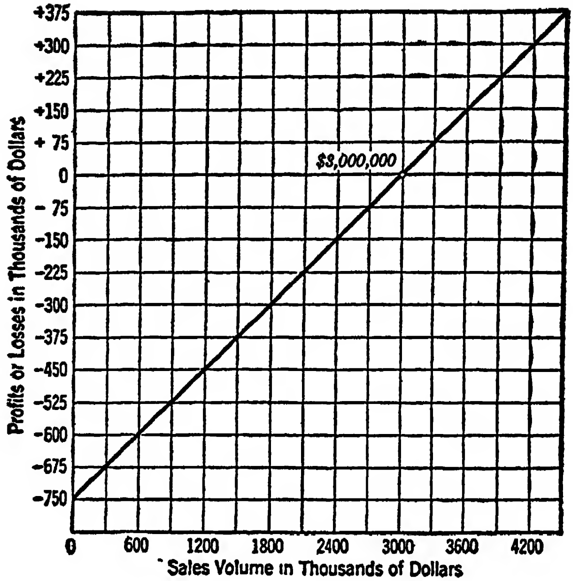
These summarized budgets are the final capstone of the entire budgetary plan, and in arriving at their final, desired form, various changes and adjustments in the departmental or divisional budgets may be necessary, in order to make the entire plan properly proportioned and well balanced. As thus determined, the summarized budgets serve for executive guidance in solving financing as well as operating problems.

PROFIT-POINT CHART

Some of the expenditures incurred in conducting a business are necessary whether the plant is operating or idle; that is to say, they are fixed. Other items of cost vary in proportion to the operations. A third group are partially fixed and partially varied with operations. Because of the fixed costs, before the "profit point" is reached, or the point at which the operations result in neither a profit nor a loss, that is, the business "breaks even," a certain minimum volume of business must be done. Any amount below that result is a loss, while every dollar's worth of sales above that figure yields a profit.

Suppose, for example, fixed costs of manufacturing, selling, and administration in a concern are $750,000 per annum and the total variable cost amounts to 75% of sales. Under these conditions every dollar's worth of sales yields a margin of $.25, to cover the amount of the fixed cost. It will, therefore, require as many

"Profit-Point" Chart



dollars' worth of sales to reach the profit-point as $.25 is contained into $750,000, which is $3,000,000. This amount is accordingly the "profit point." This is graphically illustrated in the foregoing chart which is plotted to show the losses at various points when the volume of sales fall below $3,000,000, and the profits that are earned when the volume of sales rises above $3,000,000.

REPORTS TO BUSINESS EXECUTIVES

Function of Reports.—One of the functions of accounting is that of report-making. It is chiefly by means of reports that the various business executives are kept informed of the activities in their charge, and it is on the information in these reports that executives formulate their policies and evaluate the results secured from them. The data that are contained in the various reports come from the accounts directly or indirectly by analysis.

Manager's Daily Report

Daily Report to Joseph Woods — Date Jan. 10, 19...

	Previous Balance	Deposits	Withdrawals	Today's Balance	Totals	Last Yr's Bal.	
Cash.........	2,360 79	1,537.11	2,797 40	1,100.50	1,100.50	789 50	
Receivables:	Previous Balance	Entered	Paid	Today's Balance		Last Yr's Bal.	Increase % Decrease
Trade Debtors	21,963.40	1,241.10	939.80	22,264 70		20,490.00	+ 8.6%
Acct. Rec....	900.00		100 00	800 00		200.00	+ 300.%
Notes (Trade)	1,250 00		750 00	500.00		750 00	− 33.3%
Totals.....	24,113 40	1,241.10	1,789 80		23,564.70	21,440 00	
	Previous Balance	Net Purchases	Cost Mdse. Sold	Today's Balance		Last Yr's Bal.	Increase % Decrease
Merchandise..	120,460.10	61 50	1,251.52	119,270.08	119,270.08	104,863 50	+ 13.7%
	Previous Balance	Amount Purch.	Amount Sold	Today's Balance		Last Yr's Bal.	Increase % Decrease
Negotiable Securities.....	800 00	200.00		1,000 00	1,000.00	700 00	+ 42%
Total Liquid Assets........					144,935 28		+ 13.4%
Payables:	Previous Balance	Entered	Paid	Today's Balance		Last Yr's Bal.	Increase % Decrease
Trade Creditors.......	13,562 30	61.50	1,829.90	11,793 90		10,792 30	+ 9.2%
Notes (Trade)	40,500.00	1,000.00	500.00	41,000.00		47,700.00	− 14.1%
Notes (Others)	500.00		500.00				
Totals.....	54,562.30	1,061.50	2,829 90	52,793.90	52,793.90	58,492 30	− 9 4%
Working Capital..........................					91,961.38		
	Amt. From 1st Per.	Today's Sales	Cost Mdse Sold to Date	Gross Profits		Last Yr's Gr. Pr. to Dt.	Increase % Decrease
Sales.	15,511.20	1,563 90	13,660 08	3,415 02		3,240 00	+ 5.4%
	No. From 1st Per.	Number Today		Total		Last Yr's T. to Date	Increase % Decrease
Number Sales Transactions	1,147	138		1,285		1,153	+ 11.4%
	Amt Since 1st Per.	Today's Returns		Total		Last Yr's R. to Date	Increase % Decrease
Sales Returns	43 20	8 60		51 80		49 70	+ 4.23
	Amt. Since 1st Per.	Today's Returns		Total		Last Yr's R. to Date	Increase % Decrease
Purchase Returns.......	136 70	5 10		141.80		140 10	+ 1.27
	Previous Balance	Entered	Old Acct. Paid	Today's Balance		Last Yr's Balance	Increase % Decrease
Bad Debts....	126 10	10 00		136.10		123.70	+ 1.17
	Previous Balance	Entered Today	BackOrds Filled	Today's Balance		Last Yr's Balance	Increase % Decrease
Unfilled Sales Orders.....	400 00	90.00		490 00		320.00	+ 53.1%
	Previous Balance	Purch. Ords. Issued	Invoices Entered	Today's Balance		Last Yr's Balance	Increase % Decrease
Unfilled Purchase Orders	1,400 00	2,600 00	61.50	3,938 50		1,600.00	+ 246.1%

Classification of Reports.—*The reports may be classified as follows:*

1. Accounting reports
2. Accounting-statistical reports
3. Charts or graphic reports

The accounting reports are best exemplified by the balance sheet and statement of profit and loss together with their various supporting schedules. Accounting-statistical reports comprise all sorts of tabulations and statements the material for which is furnished by various groups of accounts. These do not follow any prescribed form. The manner of set-up should be flexible, being adapted to the needs and peculiarities of the executive for whom drafted. Charts comprise pictures of statistical reports which lend themselves to graphical presentation.

An illustration of a type of daily report through which the general manager endeavors to keep himself in touch with the various major factors necessary for the proper management of the business is given on the preceding page.

COST REPORTS TO EXECUTIVES

Cost reports to industrial executives may be classified into the following three groups:

1. Those to minor executives
2. Those to departmental executives
3. Those to general executives

Reports to Minor Executives.—The minor executive—the foreman who is in immediate contact with the workers—is primarily interested in specific daily performance of individuals, and other units under his control. The principal types of reports made to him are concerned with the performance of the individuals and machines directly under him and comparative expense reports—actual expenses as against budget allowances. On the following page a manufacturing expense report is presented.

Reports to Departmental Executives.—Departmental executives receive reports in a more summary form than minor executives, having to do with the coordinated work of a department or other major division. Performance reports for the different sections of the department or for the department as a whole as of

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MANUFACTURING EXPENSE SUMMARY

DIVISION ________________ TO DATE ________________ 19 ____

	STANDARD EXPENSE			ACTUAL EXPENSE		VARIANCE—FROM STANDARD 2		ACTUAL EXPENSE COMPARISON		
	1	2	3	4	5	6	7	8	9	10
	AT STANDARD VOLUME OF PRODUCTION	AT ACTUAL VOLUME OF PRODUCTION	RATIO TO STANDARD 2 1	ACTUAL MANUFACTURING EXPENSE	RATIO TO STANDARD 4 1	AMOUNT 2—4	PERCENT 6 2	THIS MONTH	THIS YEAR TO DATE	LAST YEAR TO DATE
INDIRECT LABOR										
SUPPLIES										
TOOLS										
POWER PURCHASED										
MAINTENANCE LABOR										
MAINTENANCE MATERIAL										
LOSSES-ERRORS-DEFECTS										
FIXED CHARGES										
MISCELLANEOUS										
LESS CREDITS										
TOTAL										

TO BE USED BY DIVISIONS OUTSIDE OF CAR GROUP

THIS YEAR TO DATE	FACTORY COST OF SALES	RATIO TO "A"	
A		100	
B			
C			
D	%		
THIS MONTH			
A		100	
B			
C			
D	%		

BURDEN STATISTICS

	THIS YEAR TO DATE	PRODUCTION UNIT	RATIO TO A"	PRODUCTIVE LABOR	RATIO TO A	BURDEN ABSORBED	RATIO TO "A"	MANUFACTURING EXPENSE (TOTAL)	RATIO TO A"	UNABSORBED BURDEN	RATIO TO A"
A	STANDARD AT STANDARD VOLUME OF PRODUCTION		100		100		100		100		
B	STANDARD AT ACTUAL VOLUME OF PRODUCTION										
C	ACTUAL										
D	%—ACTUAL TO STANDARD AT ACTUAL VOLUME" C/B										
	THIS MONTH ONLY										
A	STANDARD AT STANDARD VOLUME OF PRODUCTION										
B	STANDARD AT ACTUAL VOLUME OF PRODUCTION										
C	ACTUAL										
D	%—ACTUAL TO STANDARD AT ACTUAL VOLUME" C/B										

REMARKS

OPERATING STATISTICS	THIS MONTH	THIS YEAR TO DATE	LAST YEAR TO DATE
PRODUCTIVE LABOR			
NON PRODUCTIVE WAGES AND SALARIES			
PRODUCTIVE HOURS			
AVERAGE HOURLY RATE—PRODUCTIVE LABOR			
AVERAGE NUMBER OF EMPLOYEES			
UNITS PRODUCED			
STANDARD BURDEN RATE (USED) PER			
STANDARD EXPENSE AT ACTUAL VOLUME—RATE PER			
ACTUAL EXPENSE AT ACTUAL VOLUME—RATE PER			
UNABSORBED BURDEN ANALYSIS	x x x x	x x x x	x x x x x
FIXED CHARGES UNABSORBED			
NON VARIABLE EXPENSE UNABSORBED			
UNABSORBED BURDEN—STANDARD AT ACTUAL VOLUME			
VARIANCE			
RATE DIFFERENCE			
ACTUAL BURDEN UNABSORBED			

(Lower part of form superimposed; reverse superimposed above)

interest here. Below is given an example of this type of report. Departmental burden statements and comparative statements of

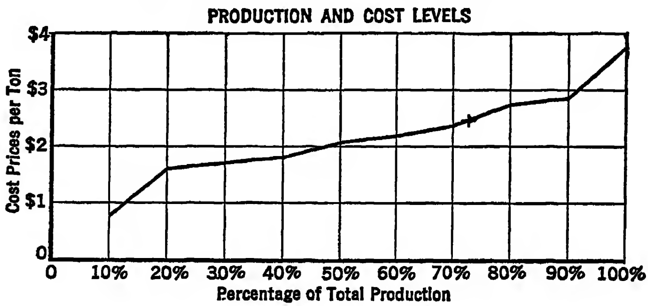
Department Cost Report

BUDGET REPORT OF SECTIONS					
Month of______			Department:______		
Total Direct Labor Cost for Month ______			Should have cost:______		
SECTION		ACTUAL COST	SHOULD COST	OVERAGE %	REMARKS
No.	NAME				

actual and estimated or standard costs are helpful in pointing out which are running too high and in placing responsibility on the proper minor executive.

Reports to General Executives.—The major executive who makes decisions of company policy must receive cost reports that are broad in their scope and cover usually a relatively long period of time. For him the reports must be summarized, the

Report of Coal Production and Cost



detail being relegated to supporting schedules. There are four distinct kinds of reports of interest to general executives.

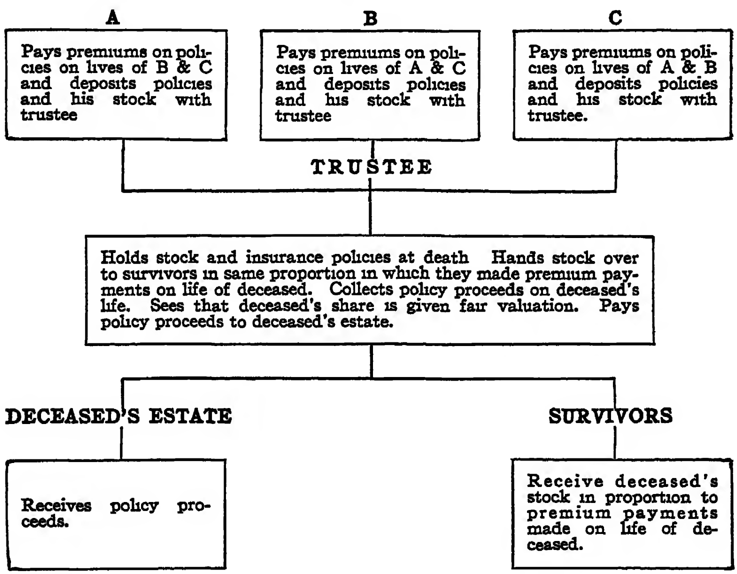
1. Those concerned with the finances of the business.
2. Those concerned with the relation of the enterprise to outside activities
3. Reports of operating efficiency
4. Special reports

A simple illustration of the second type of report is shown above.

BUSINESS LIFE INSURANCE TRUST

A life insurance trust involves the assignment of insurance policies to a trust company or bank, as trustee, for the purpose of collecting the insurance when it becomes payable, and applying the proceeds either to the immediate payment of certain expenses, such as those incident to the administration of the estate of the insured, or to the establishment of a trust fund to meet the

Diagram to Illustrate the Operation of a Business Life Insurance Trust



special needs of the beneficiaries. If securities are set aside which yield a sufficient income to pay the premiums of the life insurance, the insurance trust is said to be funded; if the premiums are to be paid out of savings, the trust is said to be unfunded.

A business life insurance trust consists of a program whereby the proceeds of certain policies of insurance on the life or lives of one or more of the principals are payable to a bank or trust company as trustee, such proceeds to be collected and disbursed by the trustee in accordance with the terms of a written agreement between the parties concerned and the trustee.

The operation of a business life insurance trust in case of close corporation is illustrated diagrammatically on the preceding page, as given in the "Financial Handbook."

DUTIES AND LIABILITIES OF PRINCIPAL AND AGENT

The relationship of principal and agent, or agency, arises when one person, the agent, is authorized to represent and act for another person, the principal, in making contracts with third parties.

Duties and Liabilities of Agent to Principal.—These duties and liabilities are as follows:

1. The agent must follow the instructions of the principal, being liable for any loss resulting from failure to obey his instructions.
2. The utmost good faith is required of the agent. He cannot make a secret profit on his transactions for the principal, represent opposing interests without the consent of both parties, or buy from or sell to himself with the principal's consent.
3. Agent must be prepared to give a complete account of his transactions to the principal.
4. He must keep the property of the principal separate from his own, as he is liable for any loss due to the intermingling of funds or property.
5. He is responsible for loss resulting from lack of skill or diligence in the conduct of his work.
6. Unless authorized so to do, he cannot delegate any of his duties to others, except mechanical duties.

Duties and Liabilities of Principal to Agent.—These duties and liabilities are as follows:

1. Principal must provide the agent with proper facilities to carry out the purposes of the agency.
2. He must reimburse the agent for reasonable expenses incurred by the agent in good faith unless it is agreed that the compensation shall cover these expenses.
3. He must pay the agent the compensation agreed upon, which may include all expenses as well.
4. He must indemnify the agent for all damages the latter incurs while innocently following the principal's instructions.

METHODS OF REMITTING ABROAD

Small Remittances.—Individuals who wish to remit small amounts abroad may do so by one of the following methods:

1. Ship paper currency of the country to which they wish to remit, which may readily be purchased from foreign exchange dealers.
2. Money orders for any of the principal foreign currencies may be purchased at nearly all of the post offices in the United States.
3. Bank post remittances can be arranged through foreign exchange dealers or the foreign departments of many banks which will effect the transfer of funds by the payment of currency or the issuance of a postal money order abroad, either of which will be forwarded by the bank's foreign representative direct to the person specified by the remitter.
4. The letter transfer is another method by which funds are transferred abroad.
5. In emergencies and where speed is an important factor, remitters may adopt the cable transfer as the means by which to send funds abroad. By using a cable transfer the remitter is assured that the paying bank will notify his beneficiary that the funds are available immediately upon the receipt of the cable from the New York bank or exchange dealer.

Large Remittances.—Importers and other business men, whose obligations are for large amounts, seldom adopt any of the above methods except the cable transfer. Following are several of the methods by which importers may discharge foreign debts.

Methods of Remittance Used by Drawee.—Depending upon credit arrangements effected, the foreign exporter may draw upon the importer in dollars, in the exporter's currency or in the currency of a third country. The American importer may remit either by cable transfer, sight, or time exchange. The form of remittance to be used will determine the period of the credit and therefore the amount of interest to be included in the draft. The longer the period, the greater the amount of the draft. But this difference is offset by the lesser rate at which the longer exchange can be purchased.

Remittance by Sight Draft.—If the importer is to remit by purchase of a sight draft at the maturity of the bill drawn and the bill is drawn in sterling, the importer may tender the collecting bank a sterling sight draft bought in the open market. If the bill is drawn in currency of a third country, the importer

must purchase a sight draft in such currency. The collecting bank forwards the draft to London or instructs the London bank to charge its account for the proper amount.

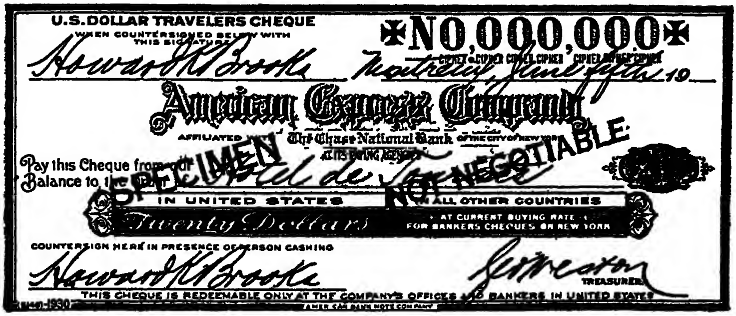
Remittance by Cable.—The importer may be required to remit by cable transfer. The net cost to the importer will be the same as though he were allowed to remit by sight or time exchange because the difference in the relative rates for the various types of exchange is offset by the difference in the amount for which the draft is drawn. Where cable transfer remittance is required, at maturity of the draft, the importer will purchase a cable transfer in the currency designated in the bill of exchange; or he will turn over the proper amount of local currency if the exchange clause governs.

Remittance by Bankers' Time Bill.—In some cases remittance is effected by a banker's time bill. Under such circumstances the importer may discharge his obligation at the maturity of the draft by tendering to the collecting bank a banker's time bill of the required maturity. The collecting bank will forward this bill to its correspondent, whereupon it will be presented for acceptance and subsequently discounted or held until maturity. The exchange clause may also be used in connection with this type of exchange.

TRAVELERS' CHECKS

Travelers' checks are convenient media of payment at the disposal of tourists in this country or abroad. They are issued by banks, express companies, and sometimes by tourist agencies. They may either be sight drafts on some bank or trust company, or take the form of promises to pay upon demand. The customary denominations are \$10, \$20, \$50, and \$100. The buyer signs each check at the time of purchase and again at the time of presentation. Comparison of the two signatures establishes identity. Travelers' checks are generally accepted as so much demand exchange and in some cases pass as currency. Travelers' checks are sold in the United States for their face value in dollars plus a commission usually of ¾%; that is, \$.75 per hundred dollars' worth. The minimum commission is \$.75. A travelers' check is illustrated on the opposite page.

A Traveler's Check



U.S. DOLLAR TRAVELERS CHEQUE

N0,000,000

American Express Company

The Chase National Bank

Pay this Cheque from our Balance to the order of

SPECIMEN NOT NEGOTIABLE

IN UNITED STATES | Twenty Dollars

ALL OTHER COUNTRIES AT CURRENT BUYING RATE FOR BANKERS CHEQUES ON NEW YORK

COUNTERSIGN HERE IN PRESENCE OF PERSON CASHING

TREASURER

THIS CHEQUE IS REDEEMABLE ONLY AT THE COMPANY'S OFFICES AND BANKERS IN UNITED STATES

TRAVELERS' LETTERS OF CREDIT

The traveler's letter of credit is a convenient means by which tourists may keep themselves in funds, particularly while traveling abroad. They are issued in dollars or in foreign currency, and are usually limited both as to life and amount. Pages 80 and 81 illustrate a traveler's letter of credit issued in dollars under a joint account arrangement between a New York bank and its London correspondent under which dollar drafts are to be drawn on the New York bank. At the time of issue of such a credit the beneficiary is furnished with a list of the issuing bank's foreign correspondents who will purchase at the prevailing rate for sight exchange drafts drawn in the currency and against the bank named in the credit. The list is signed by the buyer of the credit in the presence of the issuing banker. Both the letter of credit and list of correspondents must be exhibited before a correspondent bank abroad will purchase a draft drawn under the credit. A comparison of the beneficiary's signatures as appearing in the list of correspondents and on the draft drawn completes identification; and a comparison of the signatures of the bank officer who issued the credit, as appearing in parts of the credit with those on file with the correspondent establishes the validity of the credit. As a precaution against overdrafts, the amount of each draft drawn must be entered upon the back of the credit which is surrendered and returned to the drawer bank with last draft drawn.

Traveler's Letter

Goldman, Sachs & Co.

Travelers Letter of Credit

No. 5000 $4,000.— New York, October 31, 19—

To our Correspondents

Gentlemen:

We beg to inform you that we have accredited John Doe and/or Dorothy Doe to whom you will please furnish such funds as either may require up to the aggregate amount of Four Thousand Dollars say $4,000.— United States Currency against his or her demand drafts on Goldman, Sachs & Co. New York. We engage that such drafts shall meet with due honor.

Kindly purchase drafts at the rate at which you buy demand drafts on New York and endorse the amount of each draft on the back of this letter, which is available until December 31, 19— and must be returned with the last draft.

Please see to it that the drafts are signed in your presence, and are plainly marked as drawn under Letter of Credit No. 5000 of Goldman, Sachs & Co dated New York, October 31, 19—

Asking for them your kind attention,

We remain, Gentlemen,

Yours very truly,

(SIGNED) Goldman, Sachs & Co.

of Credit

New York, October 31, 19—

RECEIVED from MESSRS. GOLDMAN, SACHS & CO, the original of the Letter of Credit "D" No 5000 ....for $.. 4,000.- , copy of which is at the back hereof, and booklet with introduction, in consideration whereof..I... .agree to reimburse MESSRS. GOLDMAN, SACHS & CO. for all sums drawn by virtue of said Credit, together with a commission of...one ...per cent. Minimum $5.-.

MESSRS. GOLDMAN, SACHS & CO. are hereby authorized to sell at any time, at public or private sale, without notice, any securities that they may hold against this Credit.

In case said Letter of Credit or said booklet with introduction be either lost or stolen, .I.. ....hereby agree to indemnify GOLDMAN, SACHS & CO and their correspondents for any loss arising therefrom, and authorize GOLDMAN, SACHS & CO. to notify their correspondents and take such other steps as they may deem advisable for the prevention of fraud, agreeing to pay any expenses attending the same; but it is understood that they are under no obligation to take such steps.

Signed - John Doe.

TRUST RECEIPT AND FINANCIAL SHIPMENTS

A trust receipt is a document by which a bank borrower binds himself to hold certain goods, on the security of which the bank has made him a loan and which it now releases to him, in trust for its own benefit. It may happen that the borrower must get physical possession of the goods in order to deliver them to a purchaser, or as in the case of raw material, to use them in manufacture. The bank will, therefore, authorize delivery of the goods to the borrower, but will require of him a trust receipt which is evidence that the title to the goods remains with the bank. The borrowing merchant, in such case, has the confidence of the bank, but not to the extent of being granted an unsecured loan, for in the event of the borrower's insolvency, the bank has a prior claim on the goods until the loan is paid. Goods released under a trust receipt should be marked or segregated from others so that they can always be identified as the property of the bank. Difficulty frequently arises, however, because of inability to maintain the identity of the goods. Trust receipts are used most extensively in foreign trade.

BILL OF LADING—STRAIGHT AND ORDER

Negotiable and Non-negotiable Ladings.—A bill of lading is a standard contract under which the railroad accepts freight for carriage, defines its liabilities as a transportation company or warehouseman, and states its duties and those of the shipper. The content of the bill of lading is prescribed by the Interstate Commerce Commission, but any additions to it not in conflict with the standard provisions are not forbidden. If the shipper so desires, he may have bills of lading printed to conform in size with his own files, instead of using those furnished by the railroad. There are two standard forms, the straight bill of lading which is simply made out to the consignee of the shipment and is not, therefore, negotiable, and the order bill of lading, which is made out to the consignee or his order, and is, therefore, negotiable, being transferable by indorsement. Banks which make advances against shipments of goods usually insist that the bill of lading be of the order type, so that it may be indorsed to them and they have full control of the shipment until it is released upon the fulfilment of the terms of the loan.

Copies of Bill of Lading.—The bill of lading is made out in triplicate, the original and the two copies being identical except as to titles and signatures. The original is signed by the shipper and the railway agent, and constitutes the shipper's receipt for the goods delivered to the railroad. The second copy, called the "shipping order," is signed by the shipper only. It is his order to the railroad to ship the goods, and is held by the railroad as evidence of its authority. The third copy is an exact duplicate of the original. Like the first copy, it is signed by the shipper and the agent, and is held by the shipper as his duplicate receipt.

SHIPPING QUOTATIONS IN FOREIGN TRADE

Following are abbreviations of the more common shipping terms used in foreign trade, with their explanations:

F.O.B.	Free on board
F.A.S.	Free alongside
C.&F.	Cost and freight
C.I.F.	Cost, insurance, and freight

F.O.B.—When the price is quoted F.O.B. (named point) the seller undertakes to load the goods on or in cars or lighters furnished by the railroad company serving him. An F.O.B. vessel quotation implies that the price covers the expense and risk of delivery upon the vessel at the name port. Title to the goods passes at the F.O.B. point named.

C.&F. and C.I.F.—The quotation C.&F. (named foreign port) is employed when the seller is willing to pay the transportation to a foreign point of delivery. He is responsible for all loss and damage in the voyage across the sea, since title to the goods does not pass until they reach the other side. The term C.I.F. (named foreign port) is used when the seller quotes a price that is to cover the cost of the marine insurance as well as the transportation charges.

INVESTMENT TRUST AND VARIOUS TYPES

An investment trust is a company through which the funds of various participants, the stockholders, bondholders, and others, are combined and invested in a diversified list of securities so as to distribute the risk and introduce the "law of average" in protection of the principal of the funds.

Typical Characteristics.—The typical investment trust has the following characteristics:

1. It raises capital by issuing certificates of beneficial interest, or shares, frequently preferred, as well as common. Moreover, the investment trust commonly exercises its borrowing power by issuing bonds within certain well-defined restrictions, and occasionally in other ways.
2. It invests the funds so obtained in a variety of securities in order that the "law of average" may operate in protecting the portfolio.
3. It usually avoids controlling interests and so limits its participation in any one security that directive and managerial responsibilities are not assumed.
4. It undertakes continuing supervision of the investment fund on much the same principles as those which any conscientious trustee enjoying discretionary powers should apply in caring for moneyed estates.
5. It endeavors to obtain for its shareholders a return considerably in excess of that ordinarily received on investments of comparable safety. This is accomplished in the case of the typical successful investment trust as the result of:
   (a) The favorable average interest and dividend yield which the trust may enjoy through careful selection of securities which tends to be higher than could be obtained with equal safety if the capital were not sufficient for adequate diversification of risk;
   (b) The balance of cash profits on sales of investment securities which normally result from managerial alertness;
   (c) The spread between the cost of capital obtained through issuance of bonds, or preferred shares, and the actual earnings made by investing and reinvesting this capital; and
   (d) The consistent accumulation of earning reserves and surplus, built up by regularly appropriating to them a portion of net income.

Various Classes.—Investment trusts are broadly classified as:

1. Fixed type:
   (a) Not specialized
   (b) Specialized
2. Semi-fixed type
3. Trusteed systematic investment funds
4. General management type:
   (a) Unrestricted
   (b) Restricted

The fixed type of trust purchases blocks of shares of stock, each in a comparatively large number of companies. Against each block, which is called a stock unit, shares of beneficiary interest are issued to the public. Specialized types of fixed trusts include only securities of companies in a specialized field, as banks, insurance companies, public utilities, etc. In the non-specialized type of the fixed investment trust the selection of securities is subject to no such restriction.

The semi-fixed type of trusts is essentially the same as the fixed trust, except that there is a supplementary list of eligible securities for reinvestment.

Trusteed systematic investment funds are designed to enable individuals to purchase units in a fixed trust on an instalment basis.

The general management type of investment trust is characterized by an active management of the investment portfolio, which is under the complete control of the company and not tied up in any trust. Such substitutions may be made in the investment securities as the management deems desirable. Unrestricted general management trusts are those which are empowered to invest in securities of diversified industries, with or without limitation as to the amount which may be invested in the stock of any one company or industry. The restricted type embraces those in which the investment of funds is confined to companies in one industry, such as railroads, public utilities, banks, etc.

SELLING STOCK "SHORT"

Short-Selling Defined.—A short sale of stock refers to a speculative sale in which the seller does not have the stock but borrows it to make delivery. His purpose in selling short is to realize a profit from any anticipated decline in the market value of the stock, inasmuch as he will then buy it back or "cover" his short sale for less than he previously sold it. Such sellers for the decline are popularly known as "bears," while buyers for the rise are known as "bull" speculators.

Borrowing and Lending of Stock.—The borrowing and lending of stock, as well as their purchase and sale, is done by brokers in behalf of their clients. The broker who lends the stock is

likely to be one who is carrying it on margin for a customer. As he receives the current market value of the stock from the borrowing broker he pays him interest on the amount. This interest rate fluctuates with current demand for borrowed stock. If the demand is heavy, the rate may disappear entirely, in which case the stock is said to loan "flat." Or the broker borrowing the stock may even pay the lending broker a charge for the loan of the stock. In this latter case the stock is said to loan at a premium. The total amount of short sales outstanding in a stock is said to be the existing "short interest" in it. Corners arise in stocks when the short interests are unable to borrow shares to deliver them upon their sales. They are then forced to buy in the stock, and as the supply of the shares for sale is also likely to be then very limited if not entirely non-existent, the bidding for it by the shorts may send its market price to very exaggerated heights.

FORMS OF ORDERS EXECUTED ON NEW YORK STOCK EXCHANGE

Orders for stocks on the New York Stock Exchange are standardized into the following types:

Market Orders.—Orders to buy and sell at the market provide for execution as soon as possible, at the most advantageous price obtainable by the broker on the floor, but without limitation as to price. In cases of disrupted markets, brokers sometimes use their discretion and delay execution for a time, but this is quite unusual.

Limited Orders.—Customers may limit the execution of the order as to price. A limited buying order to purchase a stock at, say, 20, must be executed at a price of 20 or less. Similarly, a selling order limited at 20 must be executed at 20 or more.

Orders may also be limited by the customer as to the time during which they may be executed. Market orders are to be executed as soon as possible, and so are not limited in this way. Day orders are automatically canceled if not executed the same day in which given. Orders marked G. T. W. are "good this week," so that they become automatically void if not executed by the end of the week in which given. G. T. M. orders are good for the month in which given, while G. T. C. orders are good until can-

celed. The latter remain on the books of the broker right along until executed, and it is customary to send to the customer at the end of each month an advice as to the orders pending for his account on the books of the broker.

Stop-Loss Orders.—When buyers wish to limit their losses automatically, they may place stop-loss orders to sell. These are orders which become market orders when the price of a stock reaches a certain point on the exchange. Thus, suppose the buyer of 100 shares of stock at 50 would like to limit his loss to approximately 3 points. Accordingly, he places an order to sell at 47 "on stop." Whenever a full lot of stock is sold on the exchange at 47 or less, his 100 shares are offered at market. If market conditions are unsettled, he may not be able to get 47 for his stock, but will get the best price obtainable by his broker under the circumstances.

Short sellers may seek to limit their loss by placing stop-loss buying orders. Thus, a short seller may sell at 48, and place an order to buy "on stop" at 50. Whenever a full lot sells at 50 or higher on the exchange, this order becomes a market order to buy.

NEW YORK STOCK EXCHANGE COMMISSION RATES

The rates on all orders on the New York Stock Exchange executed for non-members for stocks are as follows (except as to inactive issues):

Prices	Rates per Share
Selling under 50¢	As mutually agreed
Selling at 50¢ and above, but under $1	Not less than 3¢
Selling " $1 " " , " " $10	Not less than 7½¢
Selling " $10 " " , " " $25	Not less than 12½¢
Selling " $25 " " , " " $50	Not less than 15¢
Selling " $50 " " , " " $75	Not less than 17½¢
Selling " $75 " " , " " $100	Not less than 20¢
Selling " $100 " " , " " $200	Not less than 25¢
Selling " $200 and over	Not less than 30¢ plus 5¢ per share for each $50 or fraction thereof, beginning at $250.

On all transactions involving $15 or more, the minimum commission is to be not less than $1. In most cases, however, members fix the minimum commission at a higher figure, the amount varying up to $5.

On inactive stocks, the commission rates are at least $.20 a share when the selling price is less than $100, and the same rates as on other issues where the price is $100 or more.

In the case of orders executed for members, commission rates are only a fraction of the above, as provided by the constitution. When non-members of the exchange, such as banks, trust companies, or non-member investment houses, originally receive the orders, they frequently add a separate commission of their own to that charged by exchange members, but the latter may in no event, under the rules of the exchange, split their commissions with others or charge less than the schedule of charges indicated above.

"TRADING ON THE EQUITY"

The basic reason for the issuance of bonds if and to the extent that conditions surrounding the operations of the new company warrant, is the cheapness with which it is possible to raise needed funds in this manner. Whenever money can be obtained by bond issue at a lower rate of interest than the funds thus obtained can earn when invested in the business, it is profitable, other things being equal, to add to existing capital in this way. This process of making other people's money work profitably for the owners of the corporation is often referred to as "trading on the equity."

Illustration.—The following example illustrates the meaning of the expression, and at the same time shows just how far such "trading" can be safely pushed. (Charles W. Gerstenberg, "Financial Organization and Management of Business," rev. ed.)

Illustration of Trading on the Equity

	1st yr.	2nd yr.	3rd yr.
Where $100,000 owned capital is used:			
Earnings	$10,000	$15,000	$3,000
Per cent on $100,000	10%	15%	3%
Where $100,000 owned capital is used, and in addition $100,000 is borrowed at 5%:			
Earnings	$20,000	$30,000	$6,000
Per cent on $200,000	10%	15%	3%
Interest	$ 5,000	$ 5,000	$5,000
Net earnings	$15,000	$25,000	$1,000
Per cent on $100,000	15%	25%	1%

When the total capital invested in the business, including both that furnished by the stockholders and that supplied by the bond purchasers, is earning \$20,000 or 10%, the earnings applicable to stockholders' investment is \$15,000 or 15%, since the \$100,000 procured from the sale of bonds has been acquired at the fixed price of 5% per year, or at a cost to the stockholders of \$5,000. When the business earns \$30,000 or 15% on the total capital investment, the stockholders receive 25% on their share of the capital. On the other hand, when the business is earning only \$6,000 or 3% on all invested funds, the stockholders get only \$1,000 or 1%, since the contract under which they borrowed \$100,000 still requires that \$5,000 per year be paid for the funds so used.

Comparison of the figures with those shown for the return on the \$100,000 invested by the stockholders when no borrowed funds are employed, reveals the advantage to the company of borrowing so long as earnings on the borrowed funds are in excess of the amount that must be paid for their use. It also shows the disadvantage of borrowing when earnings fall below that amount. If there are no earnings at all, or when the earnings of the entire enterprise are not great enough to pay the interest on the borrowed part of the funds, the company, if the condition continues long enough, is forced into insolvency.

Advantages of Bond Issues.—Not only are funds obtained by the sale of bonds cheaper than those procured by the sale of stock, when conditions permit of the issuance of bonds, but in some circumstances bonds are salable to the general public when stock cannot be sold except at prohibitively low prices. Thus the decision is often reached to issue bonds to cover a substantial part or even all the funds that must be obtained from the public, even when the owners would in other circumstances prefer to pass on some of the risks of the enterprise to outsiders.

BLUE SKY LAWS

In order to protect the public against the sale of fraudulent securities, or the use of fraud in the sale of securities not in themselves of a fraudulent nature, practically every state in the Union

has passed some type of securities law which are known as Blue Sky laws. The federal government enacted similar legislation in 1933 (Securities Act). These laws vary greatly in character and severity, and the degree to which they interfere with the normal operations of the honest vendor of sound stocks and bonds.

The blue sky laws seek to regulate the sale of securities in part through the control of the person or corporation distributing the issue, usually referred to as the dealer. In addition, regulations are set up to control the specific offerings of securities, to determine whether they meet the requirements of the law. When the proper steps have been taken to obtain authorization for the sale of a particular security under the provisions of the blue sky law of any state, the issue is said to have qualified in that particular state.

Because of a desire to avoid hampering legitimate security selling, a few states have not passed blue sky laws proper, but have enacted instead anti-fraud or "injunctive" laws which seek primarily to facilitate and expedite the prosecution of security frauds once they are brought to the attention of the state authorities. This type of law may be described as punitive in character, whereas the blue sky laws properly so called are preventive in character.

STOCKS SELLING EX-DIVIDEND

When a dividend has been declared on a stock, it is necessary to modify its quotation accordingly after the date of record, on which the corporation determines the list of those who are entitled to receive the disbursement. Thus, if a dividend is declared payable July 1 to stockholders of record June 5, the dividend will go only to holders whose names are registered on the books of the company at the close of business on that day. Those who buy the stock on June 5 will not have the shares transferred to their names until the following business day, and so are not entitled to the dividend. Therefore, the stock will sell ex-dividend June 5, or if that is Saturday or a holiday, the last preceding business day, and the price of the stock is considered as marked down by the amount of the dividend when comparing it with a previous quotation.

BOND QUOTATIONS

Quotations on bonds are in percentage of face value. Thus, if a bond is quoted at 89½, the price will be $895 per $1,000 bond. Bonds on which interest is being paid, unless they are income or adjustment bonds not ordered to be quoted the regular way, are regularly quoted "and interest," which means that an additional sum is added to the purchase price to represent accrued interest from the last coupon paying date to the date of purchase. Thus, a 6% bond purchased at 95, where interest is payable January 1 and July 1, if purchased on April 1 will cost the purchaser $950, plus $15 interest, for three months to April 1, plus commission. Bonds on which interest is in default, and income and adjustment bonds on which regularity of interest payments has not been established, are quoted "flat," in which event they are bought and sold like stock without adjustment of accrued interest.

VOUCHER REGISTER AND ACCOUNTING PROCEDURE

Forms of Record.—This is a form of purchase journal in which all types of expenditures, and not merely those for stock-in-trade, are entered as soon as the liability for them is incurred. Provision is also made in the register for the distribution of each item of expenditure to the accounts affected in the ledger. It derives its name from the voucher which is used in connection with it. It is also called the "voucher record" or "record of audited vouchers." Since the form of the register must be adapted to the requirements of each particular business many varieties of it have been developed. A typical form is found on the following page. The voucher system of recording expenditures may be operated with or without the use of a subsidiary ledger for accounts as may be desirable; with the deduction of purchase discounts at the time invoices are vouchered or at any time they are paid; with the voucher and the check either combined or separated; and so on.

Bookkeeping Procedure under Voucher System.—The following outlines the procedure as given in Himmelblau, "Principles of Accounting:"

VOUCHER REGISTER

DATE 19—		VOUCHER NO	CREDITOR	EXPLANATION Terms, etc	PAYMENT Date		PAYMENT Manner	VOUCHERS PAYABLE		PURCHASE DISCOUNT		RAW MATERIALS		IN FREIGHT CARTAGE		
May	1	2369	Thomas Byrne	net	May	10	C 36	4000	—							
	2	2370	Arthur French	2/10, 1/30, n/60	May	11	C 37	380	—	6	88	343	80	36	70	
	3	2371	Leff & Co	2/15, n/30	May	18	N.J. 10	425	30	8	51					
	5	2372	Truston Jones	1/10, n/30	May	15	C 38	1919	40	17	99	1470	—	120	60	
	7	2373	Harvey Hubbell Inc	2/10, n/30				1251	60	25	03					
	8	2374	Payroll		May	8	C 34	2798	67							
								10,774	97	58	41	1813	80	156	80	
								L54		✓		L60		L61		

VOUCHER REGISTER

	DIRECT LABOR		INDIRECT LABOR		FACTORY EXPENSE		SALES SALARIES		SELLING EXPENSE		OFFICE SALARIES		OFFICE EXPENSE		SUNDRY CHARGES		L F	ACCOUNT TO BE CHARGED
															4,000	—	24	Delivery Equipment
					276	70			149	10								
					700	—			128	80								
													51	60	1,700	—	19	Furniture & Fixtures
	1,820	40	632	17			241	60			104	50						
	1,820	40	632	17	476	70	241	60	277	90	104	50	51	60	5,700	—		
	L62		L63		L64		L70		L71		L80		L81		✓			

(Left and right-hand pages)

1. When an invoice for merchandise is received it should be OK'd by the receiving clerk as to receipt of goods, by the purchasing department as to prices and terms, and by the bookkeeping department as to clerical accuracy of extensions and footings.
2. Invoices for items other than merchandise should be first OK'd by the department authorizing the expenditure, and then by the bookkeeping department as to clerical accuracy.
3. Invoices are filed alphabetically, or according to date payable, until vouchered.
4. Prior to the due date a voucher is prepared consolidating all invoices payable to a single creditor. Attach some to office copy of voucher. Voucher should show the accounts to be charged and credited and the amounts involved.
5. Voucher is approved for payment by an executive.
6. The approved voucher is entered in the voucher register.
7. Approved vouchers are filed in the audited voucher file, either numerically or according to date due.
8. If voucher check is used it should be forwarded with voucher for signature and countersignature of authorized officials. If separate check is used, prepare check, enter check number on voucher and in voucher register, and forward check and voucher to the authorized officials to be signed and countersigned.
9. Stamp voucher "paid" and place in the paid voucher file.
10. Enter check in the check register.
11. Voucher register. Post subsidiary ledger accounts and accounts in the miscellaneous column from day to day. At the end of month, balance the register and post the totals of the various special columns.
12. Check register. Post total at end of month to credit of Cash account and to the debit of the audited vouchers account in the general ledger.
13. Cash receipts. No change in procedure.
14. Daily bank balance record. Enter daily the total deposits for each day, the total checks drawn each day, and the daily balance. No postings are made from this record.
15. Sales and return sales. No change in procedure.
16. Purchases and return purchases. Included in voucher register.
17. Columnar journal. Prepare a journal voucher, attaching thereto all supporting data. Entry should be approved by proper executive and then entered in journal. Post the subsidiary ledger accounts and accounts in the Miscellaneous column from day to day. At end of month balance the journal and post the totals of the various special columns.
18. Trial balance of each subsidiary ledger should agree with balance in the corresponding control account.

VOUCHER CHECK

The voucher check is a voucher and check combined in one document, which is used in connection with the voucher system of recording expenditures. Its general purpose is to secure from a vendor a receipt for the payment of a particular invoice, the indorsed and canceled check when returned to the vendee being that receipt. The voucher check is issued in many forms. In one common form (shown below), the details or summary of the vendor's invoice are given on the face of the check. In another, the folded form, more space is provided for entering the details of the vendor's bill, as shown on the following page.

Voucher Check—Single

UNION TRUST CO.

No ________

Date		Invoice	Amount	
		Total Invoices		
		Less — % Discount		
		Less Freight		
		Total Deductions		
		Total Remittance		

New York City ________

Pay to the Order of ________ $ ____

________ Dollars

THE ELITE SUPPLY CO

By ________ Treas.

Approved

____

Auditor

If incorrect, please return

VOUCHER—FORMS OF

The voucher is a business paper or memo used in connection with the "voucher system" of recording expenditures. Each purchase of whatever sort is usually evidenced by a vendor's bill or invoice, but these are of various sizes, forms, and colors. To provide a suitable formal document for entry in the voucher register use is made of what is termed a voucher jacket or simply a voucher of uniform size, color, and form. The essential part of

Voucher Check—Folded

MAKE ALL INDORSEMENTS HERE

Voucher No.________ Check No.________

THE F.E.FOWLER CO.

New York City________________

Pay to the order of________________________________ $________

____Dollars

In full settlement of the within accounts

THE F.E.FOWLER CO.

TO CONGRESS BANK AND TRUST CO. By________________________Treas.

New York City

Voucher No.________ Check No.________

THE F.E.FOWLER CO.

To *(Name of Creditor)* Dr.

(Address) Terms________

Charge to					(Details of items covered by Voucher)		

Approved

________________________Auditor

Approved

(Purchasing Dept)

Passed for payment

________________________Gen'l Manager

If incorrect Return, Indorsement is sufficient Receipt

(Face and reverse)

Voucher

Voucher No.________
Check No ________

THE NATIONAL MANUFACTURING CO.

To __(Name of Creditor)________ Dr.

__(Address)________

Terms·

(Details of items Covered by Voucher)

Approved
__(Purchasing Dept)__

Passed for payment
__(General Manager)__

Approved.
__(Auditor)__

(Place & Date) 19____

Received ________________ Dollars $______
In full settlement of above items

Signed __(Creditor)______

PLEASE RECEIPT AND RETURN

(*Face*)

CHARGE TO		
Total forward		
Office Salaries		
Office Supplies		
Sundry Office Expenses		
Tel Tel & Postage		
Rent		
Insurance		
Interest		
Plant		
Equipment		
Furniture & Fixtures		
Total		

(Name of Creditor) No ______
(Address)

THE NATIONAL MANUFACTURING CO
Brooklyn N Y

VOUCHER

PAID BY CHECK No ______ $ ______
DATE ________

CHARGE TO		
In-Freight & Cartage		
Direct Labor		
Indirect Labor, Factory		
Light, Heat & Power		
Raw Materials		
Sundry Factory Expense		
Salesmen's Salaries		
Salesmen's Commissions		
Advertising		
Delivery Expense		
Out-Freight		
Total		

(*Reverse*)

of the vendor, the date of the bill, terms, etc., together with the details of the items purchased and amount of the bill. The data of the vendor's bill may be copied on the voucher or may simply be clipped to it. The vouchers are numbered in sequence and are entered in the voucher register in the same order.

The two illustrations on the preceding page give a form of the voucher.

PURCHASING FUNCTION IN A BUSINESS

A high degree of cooperation is necessary in the modern business between the purchasing department and the other departments in order to maintain the company's cash position and keep the inventories liquid. The purchasing function may be broken down into the following seven successive steps:

1. Determining the article
2. Learning what the market offers
3. Selecting the vendor
4. Determining the price
5. Making the contract
6. Effecting the delivery
7. Completing the contract

Madison Cartmell ("Stores and Material Control") lists seven points which every purchasing agent should constantly have in mind:

1. He must be sure that the article selected is perfectly adapted to the use to which it is to be put.
2. He must satisfy himself that its quality meets the specifications of the requisition.
3. He must be sure that the quality is uniform throughout the shipment.
4. He must purchase it at the best price consistent with requirements and on the most advantageous terms.
5. He must be confident that he can effect delivery on the date on which the material will be required.
6. He must determine the proper quantity to meet current needs, with due regard to seasonal demand and supply.
7. He must obtain a guaranty of stated prices for a fixed period, and if possible, protection against a decline of prices during the period covered by the agreement.

The purchasing department should keep in close touch with the other departments, so that hasty buying, with resultant cost to the company, may be avoided.

PURCHASE RETURNS AND ALLOWANCES

When goods are returned to the party from whom purchased or an allowance thereon is claimed, a "debit memorandum" may be sent to the concern from whom the merchandise was purchased, or that concern may send a "credit memorandum" covering the return or the allowance. These memoranda are placed in the unpaid invoice file and deducted from the next voucher issued to that concern.

In case no further purchases are made from the particular individual or firm to which the goods are returned it is necessary to send a bill covering the return or allowance in question. Two possible procedures are open:

(a) At the time the bill is sent a journal entry may be made charging the party billed and crediting purchases, the charge being carried as a debit item in the creditors ledger and therefore also as a debit to the Audited Vouchers Control account. When cash is received in payment the entry is made in the cash receipts book, the credit being posted both to the Audited Vouchers Control account and to the account of the creditor charged in the subordinate ledger at time he was billed.

(b) If there is doubt as to the collectibility of the item it may be carried in a separate account, being entered therein in the first place, or transferred by journal entry from the Audited Vouchers Control account. When payment is received the posting from the cash receipts book must be correspondingly altered.

BANK DISCOUNT

Method of Computation.—Bank discount is simple interest computed on the maturity value of a note and deducted from that value when the note is discounted. The maturity value is the face amount of the note in case it is non-interest-bearing, and the face amount plus interest to maturity in case the note is interest-bearing. The number of days from the date the note is discounted to the date of maturity is called the "term of discount." Banks compute one day's interest on a 360-day year basis and multiply this amount by the exact number of days comprising the discount period. In computing the terms of discount either the first or last day of the period specified is included, but not both except in a few states.

To find the proceeds of a 4 months' note of $3,200 dated March 14 and discounted May 6 at 6% with collection charges of 1/10%:

Date of maturity		July 14, 19—
The term of discount from May 6 to July 14 is 69 days.		
Face value of note		$3,200.00
Discount for 60 days	$32 00	
" " 9 "	4 80	
" " 69 "	36 80	
Collection charges 1/10% on $3,200	3 20	
Total charge		40 00
Proceeds		$3,160.00

Notes bearing interest on their face are treated in a similar manner.

A 90-day note for $2,700 dated September 5 bearing interest at 6% is discounted September 29 with interest at 6%. Collection charge 1/10%.

Date of maturity		December 4, 19—
The term of discount from September 29 to December 4 is 66 days.		
Face value of note		$2,700.00
Interest at 6% on face of note for 60 days	$27.00	
" " 6% " " " " " 30 "	13 50	
" " 6% " " " " " 90 "		40 50
Total value of note at maturity		$2,740.50
Discount for 60 days	$27 41	
" " 6 "	2.74	
" " 66 "	30 15	
Collection charges 1/10% on $2,740.50	2 74	
Total charges		32.89
Proceeds		$2,707.61

CASH DISCOUNT—TERMS AND ACCOUNTING

Interpretation of Terms.—Cash discounts are deductions from selling prices offered to encourage prompt payment of bills when goods are sold on a credit basis. They are figured on the net selling prices, or the list prices less any trade discounts allowed. Since a cash discount may or may not be taken by the buyer, it is not deducted on the invoice. The buyer deducts the discount at the time he makes payment within the prescribed time.

The number of days within which the buyer may take the cash discount is stated on the invoice, in a form similar to the following: "Terms: 2% 10 days, 1% 30 days, net 60 days." This means that 2% may be deducted if the invoice is paid within 10

days (from date of delivery of goods, or of invoice, or of shipment, depending upon the agreement or upon the "custom of the trade"); 1% if the invoice is paid after 10 days but within 30 days; and no discount if paid after 30 days but within 60 days. Sometimes interest is charged on the time over 60 days.

Accounting.—The figure at which merchandise should be entered in the books is the invoice price after deducting the trade discounts allowed, but before deducting cash discounts. If, however, the cash discounts are large and are invariably taken, it is proper to deduct them on the invoice.

When a bill minus the discount allowed is paid, the customer's account is credited for the full invoice price, while Cash and Sales Discount is debited. On the profit and loss statement sales discounts are variously treated as a deduction from sales, as a selling expense, or as a financial expense.

Typical Terms.—The following are typical terms of cash discount:

1% 10d.	1% discount if paid in 10 days.
Net 30d.	Pay net within 30 days.
2% 10th proximo	2% discount if paid by the 10th of the following month.
5% e.o.m.	5% discount if paid by the end of the month.
60d. extra	Amounts to dating the bill 60 days ahead, e g.: A bill dated June 1 is due or the discount period begins August 1.

There may be a combination of some of the above terms as:

2% 10d./n 60d.	2% if paid in 10 days or net if paid from 11 to 60 days.
1% 10d./n 30d./60d. extra	1% if paid between the 60th and 70th day after date of bill, net if paid from the 71st to the 100th day, and if paid prior to the 60th day, deduct 1% and interest on the net amount from the time of payment to the 60th day.

Season Dating.—In many lines of seasonal business, the seller may date the purchase order several months ahead or allow a considerable amount of time to elapse before the beginning of the discount period. This is to induce the buyer to place his order ahead, so as to relieve the rush period, and gain advance information as to quantity to be manufactured.

TRADE DISCOUNT—USES AND CALCULATION

Definition and Purpose.—Trade discounts are deductions from list prices of goods which are not made contingent upon prompt payment. List prices are catalog or quoted prices from which the trade discounts are deducted in order to determine the price to be charged the customer.

Trade discounts are used to serve several purposes. First, instead of reprinting a catalog whenever market prices have changed, sheets containing the discounts allowed from list price are published instead. Trade discounts are also used for the purpose of partly concealing the real quotation. Without the rates of discount allowed from list, a catalog tells nothing of the real price. The "quantity discounts" allowed on goods purchased in large quantities are also a form of trade discount.

Methods of Quotation.—Prices may be quoted at a single discount or by means of a series of discounts, each taking as its base the net amount left after deducting the next preceding discount. Examples will illustrate:

1. Goods listed at $250 are quoted at 20% off. The sale price here is $200.
2. Goods listed at $500 are quoted at 50% and 20% off.
   50% off $500 leaves $250.
   20% " $250 " $200—the same real sale price as in No. 1.
3. Goods listed at $750 are priced at 50%, 33⅓%, and 20% off.
   50% off $750 leaves $375.
   33⅓% " $375 " $250.
   20% " $250 " $200—the same as in Nos. 1 and 2.

Methods of Calculation.—Short methods for calculating trade discounts when given in a series or a chain are often employed.

For a series of only two discounts, a single rate equivalent to the two may be found by subtracting their product from their sum—always treating them as decimals. Thus, a series of 20 and 20 is equivalent to a single rate of 36, $(.20 + .20 = .40; .20 \times .20 = .04; .40 - .04 = .36)$.

Where there are many such chain discounts to be computed, it is well to have the clerk prepare a table like the following, taking into consideration the usual discounts that are given in the particular trade.

Table Showing Net Equivalent After Chain Discounts

	5%	10%	12½%	16⅔%	20%	25%	33⅓%
Net	.95000	.90000	.87500	83333	80000	75000	66667
2½%	.92625	.87750	.85313	81250	.78000	73125	65000
5%	.90250	85500	.83125	79167	76000	72150	63333
10%	85500	.81000	.78750	.75000	72000	67500	.60000
10%, 5%	.81225	.76950	.74813	71250	.68400	.64125	57000
20%	.76000	.72000	.70000	.66667	64000	60000	.53333
20%, 5%	.72200	68400	.66500	.63333	.60800	57000	.50667
20%, 10%	.68400	.64800	.63000	60000	57600	.54000	.48000
20%, 10%, 5%	.64980	.61560	.59850	.57000	54720	51300	.45600
25%	.71250	.67500	.65625	.62500	.60000	.56250	.50000

To find the cost of articles listed at \$62 per dozen, less discounts of 10%, 10% and 5%: The first discount of 10% is found to be the second column on the top row of the table. Then proceed down that column to where 10% and 5% are shown. This is .76950, which is the net equivalent after discounts of 10%, 10%, and 5%. Multiply \$62 by .76950 = \$47.71, the net price.

TABLE FOR COMPUTING MARKUPS

Add to Cost	To Make on Selling Price	Add to Cost	To Make on Selling Price	Add to Cost	To Make on Selling Price	Add to Cost	To Make on Selling Price
5 %...	4¾%	17.65%...	15 %	31.58%...	24 %	55.00%...	35½%
7½ ...	7	19.05 ...	16	33⅓ ...	25	60.00 ...	37½
10.00 ...	9	20.00 ...	16⅔	35.00 ...	26	65.00 ...	39½
11.11 ...	10	20.49 ...	17	37½ ...	27¼	66⅔ ...	40
12.36 ...	11	21.96 ...	18	40.00 ...	28½	70.00 ...	41
12½ ...	11⅛	23.46 ...	19	42.86 ...	30	75.00 ...	42¾
13.63 ...	12	25.00 ...	20	45.00 ...	31	80.00 ...	44½
14.94 ...	13	26.58 ...	21	47.00 ...	32	85.00 ...	46
16.28 ...	14	28.21 ...	22	50.00 ...	33⅓	90.00 ...	47½
16.43 ...	14¼	29.88 ...	23	53.85 ...	35	100.00 ...	50

Selling Price Factor on Cost

Per cent of Net profit Desired	PER CENT COST TO DO BUSINESS															
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	1.124	1.136	1.149	1.163	1.176	1.190	1.205	1 220	1 235	1.250	1 266	1 282	1 299	1 316	1 333	1 351
2	1.136	1.149	1.163	1.176	1.190	1.205	1.220	1.235	1 250	1.266	1 282	1 299	1.316	1.333	1.351	1.370
3	1.149	1.163	1.176	1.190	1.205	1.220	1.235	1.250	1 266	1.282	1 299	1 316	1 333	1 351	1 370	1.389
4	1 163	1 176	1.190	1 205	1 220	1 235	1 250	1 266	1.282	1 299	1 316	1 333	1 351	1 370	1 389	1 408
5	1.176	1.190	1.205	1.220	1.235	1.250	1 266	1.282	1 299	1.316	1.333	1 351	1 370	1 389	1 408	1.429
6	1.190	1.205	1.220	1.235	1.250	1 266	1.282	1.299	1.316	1 333	1 351	1 370	1 389	1 408	1 429	1 449
7	1.205	1.220	1.235	1.250	1.266	1.282	1.299	1.316	1 333	1 351	1.370	1 389	1.408	1 429	1.449	1.471
8	1 220	1.235	1.250	1.266	1.282	1.299	1.316	1.333	1.351	1.370	1 389	1.408	1 429	1 449	1.471	1 493
9	1.235	1.250	1.266	1.282	1.299	1.316	1.333	1.351	1 370	1.389	1.408	1 429	1 449	1 471	1 493	1 515
10	1 250	1.266	1.282	1.299	1.316	1.333	1.351	1.370	1.389	1.408	1.429	1.449	1.471	1.493	1.515	1.538
12½	1.290	1 307	1 324	1.342	1.361	1.379	1.399	1 418	1 439	1 460	1 481	1.503	1 527	1 550	1 575	1 600
15	1 333	1 351	1 370	1.389	1.408	1.429	1.449	1.471	1.493	1.515	1.538	1.563	1.587	1.613	1.639	1 667
16⅔	1.364	1 382	1 402	1 422	1 442	1.463	1.485	1 508	1.531	1 554	1 579	1.604	1 630	1 657	1 685	1 714
18	1.389	1.408	1.429	1.449	1.471	1.493	1.515	1.538	1.563	1.587	1.613	1.639	1.667	1.695	1.724	1 751
20	1 429	1.449	1.471	1.493	1.515	1.538	1.563	1.587	1 613	1 639	1 667	1.695	1.724	1 754	1 786	1 818
25	1.538	1 563	1.587	1 613	1.639	1.667	1.695	1.724	1.754	1.786	1 818	1.852	1.887	1 923	1.961	2 000
30	1 667	1 695	1 724	1 754	1 786	1 818	1.852	1 887	1 923	1 961	2 000	2 041	2 083	2 128	2 174	2 222
33⅓	1.765	1.796	1.829	1 863	1.899	1 935	1.974	2 013	2 055	2.098	2 143	2 190	2 239	2 290	2 344	2 400

PERCENTAGE OF PROFIT BASED ON SELLING PRICE

The selling price of goods when certain factors are known can be readily obtained through the use of the formula or a table (see preceding page). These factors are:

1. Cost of goods
2. Per cent cost of doing business based on selling price
3. Per cent of net profit desired based on selling price

The table on the preceding page gives the selling price factor and has been derived from the formula:

$$S\ P.\ \text{factor} = \frac{1}{1-(C+P)}$$

where C = per cent cost on sales of doing business
P = per cent net profit on sales desired

What should the selling price of an article be when its cost is $22, the desired percentage of net profit on sales is 20%, and the percentage cost of doing business on sales is 25%. Referring to column headed 25% on the line 20%, we find the factor 1.818. Multiply $22 by 1.818 to give the selling price which is $40. Proof:

Cost of doing business 25% of $40	$10
Per cent profit desired 20% of $40	8
Cost of goods	22
Selling price	$40

ANTICIPATION RATES AND PERCENTAGES IN RETAIL BUSINESS

Use of Term.—Anticipation is a term used in retail business in connection with invoices for purchases which have dating terms. Thus a bill of merchandise is purchased at 2%, 10 days, 90 days extra. If merchandise is received within 10 days from date of invoice, most concerns permit purchaser to take additional discount at rate of, say, 6% per annum for 90 days, equivalent to 1½%, in addition to 2% cash discount.

Anticipation Rates Illustrated.—In computing anticipation on invoices, the table on pages 105 and 106 will be of assistance. The annual rates have been reduced to a daily basis. This table is based upon 365 days to the year and covers annual anticipation rates from 1% to 10% inclusive, covering periods from 1 to 90 days. The figures shown opposite the various number of days

A Table of Anticipation Rates and Percentages

Per Annum Rates

Days	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	00274	00548	.00822	.01096	.01370	.01644	.01918	.02192	.02466	.02740
2	.00548	.01096	.01644	.02192	02740	.03288	.03836	.04384	.04932	.05479
3	00822	01644	02466	03288	04110	.04932	.05753	.06575	07397	.08219
4	01096	02192	.03288	.04384	05479	06575	07671	.08767	.09863	.10959
5	.01370	.02740	.04110	.05479	.06849	.08219	09589	.10959	.12329	.13699
6	01644	03288	.04932	.06575	08219	.09863	.11507	.13151	.14795	.16438
7	.01918	03836	.05753	.07671	.09589	.11507	.13425	.15342	.17260	.19178
8	02192	04384	.06575	.08767	.10959	.13151	.15342	.17534	.19726	.21918
9	.02466	04932	.07397	09863	.12329	.14795	.17260	.19726	.22192	.24658
10	.02740	.05479	.08219	.10959	.13699	.16438	.19178	.21918	.24658	.27397
11	.03014	.06027	.09041	.12055	.15068	.18082	.21096	.24110	.27123	.30137
12	03288	.06575	.09863	.13151	.16438	.19726	.23014	.26301	.29589	.32877
13	.03562	07123	.10685	.14247	.17808	.21370	.24932	.28493	.32055	.35616
14	03836	07671	.11507	.15342	.19178	.23014	.26849	.30685	.34521	.38356
15	04110	08219	.12329	.16438	.20548	.24658	.28767	.32877	.36986	.41096
16	.04384	.08767	.13151	.17534	21918	26301	30685	.35068	.39452	.43836
17	.04658	09315	.13973	.18630	.23288	.27945	32603	.37260	.41918	.46575
18	.04932	09863	.14795	.19726	24658	.29589	.34521	.39452	.44384	.49315
19	.05205	10411	.15616	.20822	.26027	.31233	.36438	.41644	.46849	.52055
20	.05479	.10959	.16438	.21918	.27397	.32877	.38356	.43836	.49315	.54795
21	.05753	.11507	.17260	.23014	.28767	.34521	.40274	.46027	.51781	.57534
22	.06027	.12055	.18082	.24110	.30137	.36164	.42192	.48219	.54247	.60274
23	.06301	12603	.18904	.25205	.31507	.37808	44110	.50411	.56712	.63014
24	06575	.13151	.19726	.26301	32877	.39452	.46027	.52603	.59178	.65753
25	.06849	.13699	.20548	.27397	.34247	.41096	.47945	.54795	.61644	.68493
26	.07123	.14247	.21370	.28493	.35616	.42740	.49863	.56986	.64110	.71233
27	07397	.14795	.22192	.29589	.36986	.44384	51781	.59178	.66575	.73973
28	07671	.15342	.23014	30685	.38356	.46027	.53699	.61370	.69041	.76712
29	.07945	.15890	.23836	31781	.39726	.47671	55616	.63562	.71507	.79452
30	.08219	.16438	.24658	.32877	.41096	.49315	.57534	.65753	.73973	.82192
31	.08493	.16986	.25479	.33973	.42466	.50959	.59452	.67945	.76438	.84932
32	.08767	.17534	.26301	.35068	.43836	.52603	61370	.70137	.78904	.87671
33	.09041	.18082	.27123	.36164	.45205	.54247	.63288	.72329	.81370	.90411
34	.09315	.18630	.27945	.37260	.46575	.55890	.65205	.74521	.83836	93151
35	.09589	.19178	.28767	.38356	.47945	.57534	.67123	.76712	.86301	.95890
36	.09863	.19726	.29589	.39452	.49315	.59178	.69041	.78904	.88767	.98630
37	.10137	.20274	.30411	.40548	.50685	.60822	.70959	.81096	.91233	1 01370
38	.10411	.20822	.31233	.41644	.52055	.62466	.72877	.83288	.93699	1 04110
39	.10685	.21370	.32055	.42740	.53425	.64110	.74795	.85479	.96164	1 06849
40	.10959	.21918	.32877	.43836	.54795	.65753	.76712	.87671	.98630	1.09589
41	.11233	22466	.33699	.44932	.56164	.67397	.78630	.89863	1 01096	1 12329
42	.11507	.23014	.34521	.46027	.57534	.69041	.80548	.92055	1.03562	1.15068
43	.11781	.23562	.35342	.47123	.58904	.70685	.82466	.94247	1.06028	1.17808
44	.12055	.24110	.36164	.48219	.60274	.72329	.84384	.96438	1.08493	1.20548
45	.12329	.24658	.36986	.49315	.61644	.73973	.86301	.98630	1.10959	1.23288
46	.12603	.25205	.37808	.50411	.63014	.75616	.88219	1 00821	1.13424	1 26027
47	.12877	.25753	.38630	.51507	.64384	.77260	90137	1 03013	1.15890	1 28767
48	.13151	.26301	.39452	.52603	.65753	.78904	.92055	1.05205	1.18356	1 31506
49	13425	26849	.40274	.53699	.67123	.80548	.93973	1.07397	1.20821	1 34246
50	.13699	.27397	.41096	.54795	.68493	.82192	95890	1.09589	1 23287	1 36986

A Table of Anticipation Rates and Percentages—(Continued)

PER ANNUM RATES

Days	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
51	13973	27945	.41918	.55890	.69863	.83836	.97808	1 11780	1 25753	1 39726
52	14247	.28493	.42740	.56986	.71233	.85479	99726	1 14146	1 28219	1 42465
53	14521	29041	.43562	.58082	72603	.87123	1 01643	1 16164	1 30684	1.45205
54	14795	.29589	.44384	.59178	.73973	.88767	1 03561	1 18356	1.33150	1 47945
55	15068	.30137	.45205	.60274	.75342	.90411	1.05479	1 20547	1.35616	1 50684
56	15342	.30685	.46027	.61370	.76712	.92055	1.07397	1 22739	1 38082	1 53424
57	15616	31233	.46849	.62466	.78082	.93699	1 09315	1 24931	1.40547	1 56164
58	15890	.31781	.47671	.63562	79452	95342	1 11232	1 27123	1 43013	1 58904
59	16164	.32329	48493	.64658	.80822	96986	1 13150	1 29315	1 45479	1 61643
60	16438	.32877	.49315	.65753	82192	.98630	1.15068	1 31506	1 47945	1 64383
61	16712	33425	50137	.66849	.83562	1 00274	1 16986	1 33698	1 50410	1 67123
62	16986	33973	.50959	.67945	.84932	1 01918	1 18904	1 35890	1 52876	1 69863
63	17260	34521	.51781	.69041	.86301	1 03562	1 20821	1 38082	1 55342	1 72602
64	17534	.35068	52603	.70137	.87671	1 05205	1 22739	1 40273	1 57808	1 75342
65	17808	.35616	53425	.71233	.89041	1 06849	1 24657	1 42465	1 60273	1.78082
66	.18082	.36164	54247	.72329	.90411	1 08493	1 26573	1 44657	1 62739	1.80821
67	18356	36712	.55068	.73425	.91781	1 10137	1 28493	1 46849	1 65205	1.83561
68	18630	.37260	.55890	.74521	.93151	1 11781	1 30410	1 49041	1 67671	1.86301
69	18904	.37808	.56712	.75616	.94521	1 13425	1 32328	1 51231	1 70136	1 89041
70	.19178	.38356	.57534	.76712	.95890	1.15068	1 34246	1.53424	1 72602	1 91780
71	.19452	.38904	.58356	.77808	.97260	1 16712	1 36164	1 55616	1 75068	1 94520
72	.19726	.39452	.59178	.78904	.98630	1 18356	1 38082	1.57808	1 77534	1 97260
73	20000	.40000	.60000	.80000	1 00000	1 20000	1 40000	1 60000	1 80000	2 00000
74	20274	.40548	60822	.81096	1 01370	1 21644	1 41917	1 62191	1 82465	2 02739
75	.20548	.41096	.61644	.82192	1 02740	1 23288	1.43835	1 64383	1.84931	2.05479
76	.20822	.41644	.62466	.83288	1 04110	1 24931	1 45753	1 66575	1 87397	2.08219
77	21096	.42192	.63288	.84384	1 05479	1 26575	1 47671	1 68767	1.89863	2 10958
78	21370	.42740	.64110	.85479	1 06849	1 28219	1 49589	1 70958	1 92328	2 13698
79	21644	.43288	.64932	.86575	1 08219	1.29863	1 51506	1 73150	1.94794	2 16438
80	.21918	.43836	.65753	.87671	1.09589	1 31507	1 53424	1.75342	1.97620	2.19183
81	22192	.44384	.66575	.88767	1 10959	1 33151	1.55342	1.77534	1 99726	2 21917
82	22466	.44932	.67397	.89863	1.12329	1.34794	1 57260	1 79726	2.02191	2 24657
83	22740	.45479	.68219	.90959	1.13699	1 36438	1.59178	1.81917	2 04657	2 27397
84	.23014	.46027	.69041	.92055	1 15068	1.38082	1.61095	1 84109	2.07123	2 30136
85	.23288	.46575	.69863	.93151	1.16438	1 39726	1.63013	1.86301	2.09589	2 32876
86	.23562	.47123	.70685	.94247	1 17808	1 41370	1 64931	1 88493	2.12054	2 35616
87	.23836	.47671	.71507	.95342	1.19178	1.43014	1.66849	1 90684	2 14520	2 38356
88	.24110	.48219	.72329	.96438	1 20548	1 44657	1 68767	1 92876	2.16986	2.41095
89	24384	.48767	.73151	.97534	1 21918	1 46301	1.70684	1.95068	2.19452	2 43835
90	.24658	.49315	.73973	.98630	1.23288	1 47945	1.72602	1.97260	2.21917	2.46575

are the per cents applicable to the respective period, based upon the annual percentage shown at the top of the column.

Invoice dated March 31 for $4,750.90, terms 2%, 10 days, 90 days extra, F.O.B. destination, paid on April 27.

Invoice	$4,750 90
Less: Freight	30.40
	4,720.50
Less: Discount 2%	94.41
	4,626.09
Less: Anticipation 6% for 73 days (1.2%, see table) .	55.51
Amount of check	$4,570.58

The 1.2% anticipation shown above is taken from the table on the opposite page against 73 days and under the 6% column.

It is the custom with some stores to compute the discount on the face of the invoice and the anticipation on the net amount after deducting the discount; then deducting the freight charges. This plan, which favors the purchaser, is illustrated below:

Using the same example as shown above, namely, invoice dated March 31 for $4,750.90, terms 2%, 10 days, 90 days extra, F.O.B. destination, paid on April 27, the computations are as follows:

Invoice	$4,750.90
Less: Discount 2%	95.02
	4,655.88
Less: Anticipation 6% for 73 days (1.2%, see table)	55.87
	4,600.01
Less: Freight	30.40
Amount of check	$4,569.61

MERCANTILE AGENCY—DUN & BRADSTREET, INC.

This company is the best known and most frequently used of the mercantile agencies which disseminate credit information concerning business enterprises. Its organization consists of thousands of trained reporters, correspondents, and attorneys located in every trading center. It publishes a rating book for general reference regarding capital and credit standing of the concerns covered. The book undergoes constant revision and is republished every two months. It purports to list every manufacturer, jobber, wholesaler, retailer, and bank, about 2,000,000 in number. Because of the enormous number of listings, it is necessary to condense the conclusions under two heads, and they are represented by two symbols.

The first symbol used denotes the relative capital or size of the business; and the second indicates the general credit standing, whether of the best or not so good. The two ratings are distinct and bear no relation to each other. Thus a large concern may be rated "Aa," meaning that in size it is a $1,000,000 enterprise. The second rating of "1½," however, would indicate that its willingness and ability to pay its debts was not of the best. Again, the first rating of a concern might be "E" indicating $20,000 to

$35,000 in size, while its second rating of "2" would signify that its credit standing was high.

The following table shows the symbols used by Dun & Bradstreet, Inc. The vertical solid lines which separate the different grades of credit in this symbol chart indicate the ratings ordinarily required by credit insurance companies before they will generally insure the shipper against loss.

Commercial Ratings—Dun & Bradstreet, Inc.

Estimated Pecuniary Strength	General Credit			
	High	Good	Fair	Lt'd
AA Over $1,000,000	A1	1	1½	2
A+ $750,000 to $1,000,000	A1	1	1½	2
A 500,000 to 750,000	A1	1	1½	2
B+ 300,000 to 500,000	1	1½	2	2½
B 200,000 to 300,000	1	1½	2	2½
C+ 125,000 to 200,000	1	1½	2	2½
C 75,000 to 125,000	1½	2	2½	3
D+ 50,000 to 75,000	1½	2	2½	3
D 35,000 to 50,000	1½	2	2½	3
E 20,000 to 35,000	2	2½	3	3½
F 10,000 to 20,000	2½	3	3½	4
G 5,000 to 10,000	....	3	3½	4
H 3,000 to 5,000	......	3	3½	4
J 2,000 to 3,000	....	3	3½	4
K 1,000 to 2,000	......	3	3½	4
L 500 to 1,000	....	....	3½	4
M Less than 500	....	....	3½	4
Blank	1	2	3	4

In addition, Dun & Bradstreet, Inc., furnish reports on the concerns under investigation, which include:

1. History of the past record of the concern or the principals conducting the business.
2. Financial statements showing assets, liabilities, and net worth. These statements are as of current and earlier periods. The agency neither audits nor verifies the statements obtained by it, but requires the signature of the merchant.
3. Comments on general conditions indicated by the statements.
4. Information as to character, habit, and business capacity; and as to location, business outlook, etc. These matters are reported as mere hearsay, but they should not be disregarded unless actually known to be erroneous. Often they will be found to be trustworthy
5. Information regarding opinions and experiences of other creditors.
6. Fire record.

PSYCHOLOGY OF COLLECTING ACCOUNTS

The wise credit and collection man, like the wise salesman, studies his customers, their habits of living, buying, paying, thinking, and also the effect his business produces on these habits.

A Chart of Collection Psychology

NECESSARY IN EVERY LETTER	SECURE ATTENTION SECURE ACTION MAINTAIN RESPECT SHOW FAIRNESS EMPLOY SURPRISE AND IMPULSE
DESIRABLE IN EVERY LETTER	RESELL THE CUSTOMER YOUR GOODS, CREDIT OR SERVICE (APPEAL TO SELF-INTEREST) APPEAL TO PRIDE APPEAL TO GOODWILL AND COOPERATION
NECESSARY IN EARLY LETTERS	USE THE POWER OF HABIT
POSSIBLE IN ANY LETTER	APPEAL TO: GOOD NATURE FAIR PLAY DESIRE TO AVOID ANNOYANCE SUCCESS
BACKGROUND OF EARLY LETTERS AND FOREGROUND OF LATER LETTERS	APPEAL TO FEAR
POSSIBLE IN LATER LETTERS	APPEAL TO SHAME
POSSIBLE AT VARIOUS TIMES	APPEAL TO: FAMILY AFFECTION CURIOSITY SAVINGS ACQUISITIVENESS COMPETITION IMITATION PATRIOTISM
AVOID AT ALL TIMES	ANGER PITY CONTEMPT

This is the study of collection psychology. He must analyze the mental operation of the man who is asked to pay a bill, and discover the usual trend of his thought so as to work with it rather than against it. Next he must study his customers to see whether there are any other motives on which they are accustomed to act, which he can use in collection. Such a motive as local pride, for instance, may never have entered the customer's mind in

connection with his payment, but this does not mean that the collection man cannot make use of it. A first-rate aid in guiding one in such such collection psychology study is the chart given above, suggested by Gardner and Fall in "Effective Collection Methods," which exhibits the method in graphic form.

COLLECTION METHODS

The aim of the competent collection man of a business establishment is not only to collect but also to retain for his house the goodwill of a good account. To that he will have as a background all the available credit information as well as the ledger history of the account before he decides upon the mode of handling it.

In trying to collect from the account whose goodwill it is important to retain, as well as from the one requiring more drastic action, several steps are open to the collector.

1. **Statements.**—Usually the collection process is started by mailing a statement. The first statement is merely a reminder, drawing attention to an oversight or to negligence. This may be followed, if necessary, by other statements, bearing comments such as: "Please remit," "Kindly advise if you do not find above amount correct."

2. **Letters.**—The first letter may be extremely mild and be followed by others of varying degrees of forcefulness but increasing progressively in insistence. Distinctiveness is essential in a letter intended to be attention-compelling. This may be realized by injecting personality into the letter, referring to items in connection with the specific transactions or particular matters of interest to the debtor, and by a proper follow-up course.

3. **Telegrams.**—The collection telegram suggesting urgency has considerable psychological value. In using it, however, one must avoid liability for libel or extortion. The telegram should not contain a threat of bankruptcy or criminal prosecution.

4. **Drafts.**—When no satisfactory response is received to collection letters or telegrams, the collector may try to force the issue by drawing on the debtor. Such drafts may be deposited by the collector at his bank, which forwards to a correspondent bank in the debtor's locality, or it may be sent by the creditor

direct to the debtor's bank, or to a bank in the debtor's vicinity. Usefulness of the draft as a collection instrument is, however, limited. Is usually makes the debtor resentful, or he gives the collecting bank some plausible reason for not paying.

5. Collection Attorneys.—A claim should be placed with an attorney only after careful consideration, since this mode of collection involves expense and the probability of losing the account. Attorneys who specialize in the collection of accounts and who are organized for this service usually can serve to best advantage. Care must be exercised in the selection of such attorneys, so as not to employ an incompetent or unscrupulous attorney.

6. Collection Agencies.—The points to be considered in connection with the attorney apply to the employment of collection agencies for collecting accounts. The good collection agency promptly tries to collect amicably, and advises suit only after the case has been carefully considered.

BULK SALES LAW FOR PROTECTION OF CREDITORS

The purpose of this law is to prevent debtors from defrauding creditors by selling or transferring in bulk their stocks of merchandise. It has been enacted in every state. The New York law, which is typical, provides that such sale may not be made except in the ordinary course of business unless the purchaser receives from the seller written lists of names and addresses of the creditors, with the amount due each, and he notifies each creditor five days before taking possession of the merchandise of the terms of the sale. Any purchaser who does not conform to the provisions of the act becomes, within several months after the sale, upon the application of a creditor, a trustee who is held accountable to creditors for the goods that have come into his possession because of the sale.

If the statute is not complied with and no notice of the sale is given by the purchaser, the creditor's remedy is to apply to a court for the appointment of a receiver to take over the property which has been transferred; or by setting forth the facts and requesting that the purchaser be declared a trustee of the goods for the benefit of the creditors of the seller. If the application is granted, the property is sold after being appraised, and the proceeds are applied to pay the creditors of the original seller.

FINANCIAL STATEMENT FOR

STATEMENT OF FINANCIAL CONDITION OF ____________________

Kind of business ____________________ Address ____________________

TO ____________________ ← { Name of firm asking for statement

THIS FORM APPROVED AND PUBLISHED BY THE NATIONAL ASSOCIATION OF CREDIT MEN

For the purpose of obtaining merchandise from you on credit, or for the extension of credit, we make the following statement in writing, intending that you should rely thereon respecting our financial condition on (Date) ____________ 19____

(PLEASE ANSWER ALL QUESTIONS WHEN NO FIGURES ARE INSERTED, WRITE WORD "NONE.")

ASSETS	DOLLARS	CENTS
Cash in bank		
Cash on hand		
Accounts receivable ($______ past due), less $______ reserve for doubtful accounts		
Notes and acceptances receivable ($______ past due)		
Merchandise inventory not on consignment or conditional sale (finished goods $______, work in process $______, raw material $______) (How valued at cost ☐, or "at cost or market, whichever is lower" ☐)		
Other current assets (describe)		
TOTAL CURRENT ASSETS		
Due from affiliated or subsidiary concerns		
Land (see reverse side for details)		
Buildings (at depreciated cost, see reverse side for details)		
Machinery (at cost less $______ accumulated depreciation)		
Fixtures and other equipment (at cost, less $______ accumulated depreciation)		
Notes and accounts due from partners, officers, directors, stockholders, or others not customers		
Prepaid expenses (insurance premiums, supplies, etc.)		
Other assets (describe)		
TOTAL ASSETS		

LIABILITIES	DOLLARS	CENTS
Accounts payable for merchandise, etc., past due		
Accounts payable for merchandise, etc , not due		
Acceptances and notes payable for merchandise		
Owing to finance companies, banks, or others (Secured by $______ of accounts pledged, assigned or sold) (Secured by $______ of notes or acceptances pledged or assigned) (Secured by $______ of merchandise inventory pledged or assigned)		
Notes payable to banks		
Notes and accounts payable to partners, officers, directors or stockholders		
Notes and accounts payable to others		
Taxes, interest, rental, payrolls, etc , accrued		
Debt payable in less than one year ($______ secured by mortgage on land and buildings, $______ secured by chattel mortgage or other liens on ______ (Property))		
Other current liabilities (describe)		
TOTAL CURRENT LIABILITIES		
Debt payable after one year (secured by mortgage on land and buildings)		
Debt payable after one year (secured by chattel mortgage or other liens on ______ (Property))		
Other liabilities not current (describe)		
TOTAL LIABILITIES		
NET WORTH — If Corporation — Capital Stock — Preferred		
NET WORTH — If Corporation — Capital Stock — Common		
NET WORTH — If Corporation — Surplus, Earned		
NET WORTH — If Corporation — Surplus, Unearned		
NET WORTH — If Individual or partnership — Capital		
TOTAL (Liabilities and Net Worth)		

CONTINGENT LIABILITIES—On notes or trade acceptances discounted or sold $____________. All other contingent liabilities, including those as accommodation endorser, surety, guarantor, or for law suits, judgments, etc $____________

Are you a corporation, co-partnership, or individually owned?____________ Your terms of sale____________
Amount of annual sales for cash $__________ On credit $__________ What amount of your accounts have you sold, pledged, or assigned during the past year? $__________ Is it your regular practice to sell, pledge, or assign these accounts?__________ What amount of your accounts is sold, pledged or assigned to banks? $__________ Finance companies? $__________ Others? $__________ Is any part of your assets (except accounts, notes, acceptances and merchandise) assigned or pledged as security for any debt, or is there any mortgage or other lien thereon?__________ If so, give details of assets assigned or pledged, and details of liabilities thus secured:

____

____ Actual date of last inventory____________

Does merchandise inventory represent the value of physical inventory?__________ If not, state basis used and date inventory was last reconciled and adjusted with stock____________ What amount of merchandise do you hold on consignment or conditional sale? $____________ What amount of machinery or other equipment do you hold under conditional sale? $____________ Balance due $____________ at $____________ per month If machinery or equipment is under lease contract, state amount of monthly payments $____________ What amount of claims against you is in attorneys' hands for collection? $__________ If business premises are leased to you, state term and annual rental____________
What books of account do you keep? (Give complete list)____________
Does the foregoing statement agree with those books?______ Do you keep cost records?______ Are your books of account audited?______
If so, by whom?____________ Date of last audit____________
Name and address of your bank or banks____________
How long have you been established?____________ If incorporated, under laws of what state?____________ When?____________

COMMERCIAL CREDIT PURPOSES

DETAILS OF LAND AND BUILDINGS

DESCRIPTION & LOCATION	TITLE IN NAME OF	COST	ACCUMULATED DEPRECIATION	DEPRECIATED COST	ASSESSED VALUE	ENCUMBRANCES	
						AMOUNT	TO WHOM

If land, buildings, machinery, fixtures and other equipment are valued on basis other than cost, explain such basis________

INSURANCE PROTECTION

On merchandise (fire) $______ On buildings (fire) $______ Machinery (fire) $______ Fixtures (fire) $______

Other equipment (fire) $______ Employers' liability $______

Amount of life insurance for benefit of business $______ Do you carry fidelity bonds?______

Is any insurance assigned?______ What amount?______ To whom?______

What other insurance do you carry?______

In what companies (fire, life, etc.)?______

BUY PRINCIPALLY FROM THE FOLLOWING CONCERNS

NAMES	ADDRESSES	AMOUNT OWING	
		OPEN ACCOUNT	$ NOTES ETC.

SUMMARY STATEMENT OF PROFIT AND LOSS FOR YEAR ENDED______

Sales (net)					Gross Profit on Sales	
Deduct: Cost of Goods Sold (as calculated below)					Deduct Selling, General and Administrative Expense	
Inventory beginning of year					Net Profit on Sales	
Add Purchases (or manufacturing costs)					Other Income (interest, cash discount received, etc.)	
Deduct Inventory end of year						
Cost of goods sold					Deductions from Income (interest paid, cash discount allowed, etc.)	
Gross Profit on Sales					Net Income	

Names and addresses of Partners, or if Corporation, of Officers______

The foregoing statement (both sides) has been carefully read by the undersigned (both printed and written matter), and is to my knowledge in all respects complete, accurate and truthful. It discloses to you the true state of my (our) financial condition on the ______ day of ______, 19___ Since that time there has been no material unfavorable change in my (our) financial condition, and if any such change takes place I (we) will give you notice Until such notice is given, you are to regard this as a continuing statement

Name of Individual, Firm or Corporation______

Street______ Town______ State______

Witness______ Date of signing statement______ 19___

Residence Address of Witness______ Signed by______

Title______

ATTACHMENT AS A CREDITOR'S LEGAL REMEDY

This is a legal proceeding whereby a creditor secures a lien on a debtor's property for the collection of the debt due him. Upon application the court issues a formal order, known as the writ of attachment, directing the sheriff to seize whatever amount of property may be necessary to raise sufficient money through sale to pay the debt together with costs. The sale, however, cannot be made until the creditor secures a judgment on the debt from the court, which is a separate proceeding.

The usual grounds upon which a court will grant a creditor the remedy of an attachment are as follows:

1. That the debtor is a non-resident of the state where the writ of attachment is sought against the debtor's property located within the state.
2. That he has left the state with intent to defraud creditors or to avoid service of legal process.
3. That he with like intent keeps himself concealed within the state.
4. That he has removed property or is about to dispose of property for the purpose of defrauding his creditors.
5. That he has secured property from the creditor by fraudulent representations, such as the making of a false statement in writing regarding his financial condition.
6. That he has violated the bulk sales law.

JUDGMENT AND EXECUTION—LEGAL ENFORCEMENT OF A CLAIM

When an account remains uncollected after the date fixed for payment, the creditor may bring an action against the customer. If the court finds for the plaintiff, judgment is entered, which contains the conclusions of the law upon the facts as set forth in the complaint, and leaves the creditor to his legal remedies. These consist of having a writ of execution issued, which is a warrant directing the sheriff to collect the amount of the judgment out of the personal property of the debtor, by seizing and selling it at public auction. Should the sheriff be unable to locate any assets on which to levy, he makes his return as having found the debtor execution-proof. In that case the only course open to the creditor is to arrange to have the affairs of the debtor investigated every six months or so in order to see if he has prospered sufficiently in the meantime to justify serving another writ of execution. The law allows interest on judgments until paid.

FALSE STATEMENT LAW FOR PROTECTION OF CREDITORS

The laws of nearly every state now provide for the punishment of offenders who obtain money or property on false statements of condition. The Uniform False Statements Law, enacted in a number of the states, provides in substance punishment: (1) for the making of a false statement in writing for the purpose of procuring credit, with intent that it shall be relied upon; (2) for procuring property or credit upon the faith of a false statement, the person procuring the credit not necessarily being the one making the statement; and (3) for falsely representing that a previous written statement is true with respect to present conditions, thereby procuring credit.

The essence of the crime under the new law is the making of a false statement "with intent that it shall be relied upon." By also making it a misdemeanor to make a false statement even without fraudulent intent, the statute covers exaggerated or untrue statements that may not have been intended to defraud any one.

GARNISHMENT AS A CREDITOR'S LEGAL REMEDY

Garnishment is a court proceeding whereby a party indebted to a defendant in a suit or having in his possession property of the defendant is summoned into court, compelled to disclose the amount and nature of the indebtedness or property, and enjoined from paying the indebtedness to the defendant or of disposing of the property. The person so summoned is the garnishee. Garnishment is merely an auxiliary remedy open to a plaintiff to reach the credits and property of his debtor defendant when attachment and execution are unavailing. In that sense the law regards the garnishee as a mere stakeholder of the fund or property sought to be reached.

CAPITAL, CAPITAL STOCK, AND CAPITALIZATION

Capital and Capital Stock.—Capital stock is that portion of a corporation's net worth which may not be trenched upon by dividend distributions and which can be reduced, aside from losses due to operations, only by means of certain legal formalities prescribed by statute, including the consent of a stated

majority of the stockholders. The portion of the net worth from which dividends may be paid is the surplus. Capital stock, in other words, is the margin of safety which the law prescribes for the protection of the corporation's creditors, due to the limited liability of the stockholders, that is, their freedom from personal liability for the debts of the corporation. Capital stock is represented by the aggregate par value of the issued shares, or by the aggregate "stated" value of no-par shares. It is frequently referred to merely as capital or "stated capital," the latter term being employed especially in connection with stock without par value.

Authorized and Issued Capital.—The authorized capital stock is the total amount of shares with par value or the total number of shares without par value, specified in the corporation's charter, which may be issued, usually by action of the directors. It can be increased or decreased only by the stockholders taking action to amend the charter. As frequently only a portion of the total authorized amount is issued, there may be at any moment both issued and unissued stock. Issued stock consists of (1) outstanding stock and (2) stock reacquired but not retired, being kept alive, as it were, in the treasury. The latter is known as treasury stock and may be reissued without observing the legal requirements to which an original issue of stock is subject. Its retirement generally requires action by the stockholders. Unissued stock is not properly designated as treasury stock.

Capitalization and Capital.—Capitalization is a term frequently employed in financial circles to indicate the total capital stock and the funded or bonded debt of a corporation. As used by some accounting writers, however, "capitalization" often refers only to the outstanding capital stock, especially at the outset of a new or newly reorganized enterprise.

The term "capital," in addition to referring to capital stock, is also used in the economic sense of the funds invested in the business and represented by the assets, or to signify the total net worth, or, again, to refer to the capital stock and paid-in surplus, as representing the total contribution of stockholders.

Share of Stock.—The total stockholders' interest, capital stock and surplus, is divided into a certain number of equal fractions, called shares; or if there are several classes of stock issued, each

class is divided into a number of equal shares. In the contemplation of the law shares of stock are uniform, transferable contracts which the stockholders have with the corporation and with each other, conferring upon the holders certain rights and imposing upon them certain liabilities. The stock certificate is merely the written or engraved evidence of the ownership of a certain number of shares.

Rights and Liabilities of Stockholder.—Without specific statutory or charter provisions to the contrary, the owner of capital stock possesses the three fundamental rights of participation in the distribution of profits, participation in distribution of the assets upon dissolution, and voice in the management or voting power, though the last-named right may be restricted or entirely removed in the case of certain classes of stock. The extent of his participation in these rights depends upon the proportion of the total issued shares he holds. Of the obligations imposed upon stockholders the most common is the requirement that payment be made in full for the shares in accordance with the terms of the subscription agreement, including the full par value in the case of stock with par value. Special liabilities are sometimes imposed by statute, which modify the general rule of stockholders' limited liability.

PAR VALUE OF STOCK

Nature of Par Value.—Stocks are of two classes according as their shares have or have not a par or so-called nominal value. The par value is a more or less arbitrary figure fixed by the certificate of incorporation and stated on every stock certificate. Its real significance is as follows:

1. It fixes the minimum subscription price at which the shares may be issued. An original sale of stock at a price below par renders the purchaser liable for the deficiency, at least to the creditors of the corporation if not to the corporation itself.
2. It determines the amount of the subscription proceeds which is to be credited to the capital stock, which is aggregate par value of the shares. Premiums received for the shares in excess of their par value constitute paid-in surplus.

Formerly stock with par value of $100 per share was the rule, and still is among railroads. Among industrial and public utility

companies, however, many of those having stock with par value have the par fixed at much less than $100—at figures ranging usually anywhere from $1 to $25 or so. Some state statutes prescribe the maximum and minimum par values which corporations organized under them may have, while other state statutes set no such limits.

Disadvantages of Par Value.—Par value attached to shares of stock has certain disadvantages which have led practically all states to permit corporations to issue shares without par value. Among the disadvantages are the following:

1. The liability its use imposes on shareholders when stock is sold below par hampers concerns in financing with stock issues when the market price of the shares is below par.
2. Use of par value encourages the practice of overvaluing property and services given in exchange for additional shares when the market price of the shares is below par. It tends to result, therefore, in stock watering.
3. The danger of investors mistaking the par value for the intrinsic value of the shares is another objection frequently urged against the use of stock with par value, though this in itself can hardly be taken as a serious reason for its abolition.

SHARES OF STOCK WITHOUT PAR VALUE

History.—To overcome the disadvantages of stocks with par value (which see) practically all states have since 1912 passed laws permitting corporations to issue stock without par value. The laws relate to all classes of stock—common, preferred, and special. Certain corporations, however, are excluded from this permission. They are usually banks and trust companies, savings banks, building and loan associations, and insurance companies. No-par stock issues have been very popular for a decade or more prior to the depression of 1930-34, but the unintentional discrimination against them contained in various corporate tax laws has since caused corporations to resort to low par value stocks.

Two Types.—No-par value stocks are of two main types: so-called fixed or stated value no-par shares and actual or true no-par shares. Stated value no-par shares have a fixed or stated value assigned to each in the certificate of incorporation, and

being legally required the effect of that value is practically the same as that of par value, the only difference virtually being that unlike par value the stated value is not shown on the face of the stock certificate. Most no-par issues are true no-par shares, not having any legally enforceable stated value. Upon the issue of these shares, their stated value is fixed by the directors and may be the consideration received for the shares or a portion of the consideration, the balance being credited to capital or paid-in surplus. This stated value does not represent any minimum subscription price at which later issues of the stock may be put out.

Advantages of No-par Stock.—The advantages usually attributed to no-par stock are possessed by this latter class. They are chiefly the following:

1. As there is no minimum subscription price fixed, corporations are able to sell stock no matter what the current quotations for the outstanding shares may be.
2. Use of the true no-par shares has done away considerably with the practice of grossly overvaluing the consideration received for the shares in a form other than money, as property and services—a practice frequently referred to as "stock watering."

PREFERRED STOCK AND ITS VARIOUS FORMS

Corporations are usually empowered to issue various classes of stock, besides the common, each differing from the others in the special rights it possesses or the limitations and restrictions it is subject to. It is simply a matter of contract between the corporation and the holders of the respective issues, as set forth in its charter. Summed up, these provisions consist of certain preferential rights as regards priority to dividend payments and payments in liquidation, certain limitations imposed upon the amount of dividends they are entitled to or upon the amount receivable in liquidation, as well as upon the voting power, the special privilege or option to convert into another stock and the corporation's right to redeem the stock before maturity.

Cumulative and Non-cumulative Preferred Stocks.—Preferred stock gets its name from its prior claim to dividends, or to dividends and assets in liquidation. The prior claim to dividends may be cumulative or non-cumulative. Cumulative

preferred stock is one entitled to receive dividends at the stipulated rate per annum before any dividends are paid to the common stockholders. If not paid in any year, the amount so in arrears must be paid as well as the current dividend before any distributions can be made on the common. Non-cumulative preferred stock is that which is entitled to receive the stated rate of dividends only in the years in which the directors in their discretion choose to declare them. Dividends passed in any year become a total loss to the preferred stockholders. In other words, unpaid dividends do not accumulate as a charge upon the company's earnings subsequent to the interest on its indebtedness.

Second, Third, etc., Preferred Stock.—When a company has two or more issues of preferred stock outstanding, the preferential rights, privileges, qualifications, and restrictions of each are defined in the charter or certificate of incorporation. Formerly, it was customary to call the issues by number—first preferred, second preferred, and third preferred, for example. The first preferred had the first claim of all the stock issues upon the earnings and assets, up to stated amounts, the second had the next claim, while the third preferred ranked after it, the common shares coming last. In recent years the tendency has been to discontinue calling preferred stocks by number and instead to use designations that will not call an investor's attention too forcefully to the subordination of the preferences when two or more issues are outstanding. Thus preferred issues may be called preferred A, preferred B, etc., or they may be called prior preferred, preferred, and junior preferred; or the preference may not be indicated at all in the designations, but the issues may be distinguished by the rates of dividend they bear.

Participating and Non-participating Preferred Stock.—Preferred stocks may be participating or non-participating either as to dividends or as to both dividends and assets. If the dividends they are entitled to are limited to a fixed preferential rate, as 7%, and all subsequent earnings inure to the common stock, the preferred stock is non-participating as to dividends. If, however, it is given the right to share in the distribution of earnings in excess of the fixed preferential rate, it is participating as to dividends. Thus a preferred stock may have preference to

dividends up to 7%, and participate with the common stock in all subsequent dividends share and share alike. Similar provisions may exist for the participation or non-participation in the assets upon liquidation after the preferred stock has been paid the fixed preferential amount.

Redeemable Preferred Stock.—Preferred may be subject to redemption or retirement. Most industrial preferred issues have this redemption feature. The redemption may be voluntary or at the option of the issuing company, or it may be compulsory, a certain amount to be redeemed each year or so, and for this purpose the company may be required to contribute periodically from its earnings a certain amount to a sinking fund. Usually a premium is paid for the stock redeemed, varying in size up to 25% of its par value, and in some instances even higher.

Convertible Preferred Stock.—Convertible stock is a preferred issue which is exchangeable for a junior preferred or common stock at the option of the holder. The convertible feature is attached to preferred stock to render it more attractive to security buyers. The holder of such shares possessing certain preferential rights and other protective features, and through his conversion privilege, particularly if it applies to common stock, he is in a position to share, at his election, in any prosperity which may come to the company. The conversion privilege includes provisions with regard to the type of stock to be issued upon conversion, the rate or price at which the conversion may be made, the period in which the conversion may be made, which may or may not be limited, adjustments of dividends accrued on the two stocks to be exchanged, and certain protective features safeguarding the conversion privilege from a diminution of its value as the result of certain corporate transactions.

Preferred Stock Issued in Series.—Some state laws provide for the issuance of preferred stock in several series or instalments. The general issue is authorized by the company's charter, but the specific provisions relative to dividend rate, preferences, redemption, conversion, etc., of each of the successive series is left to the directors to determine at the time of issue. Such preferred stock is to be found principally among the public utilities.

BOOK VALUE OF A SHARE OF STOCK

Meaning of Book Value.—Book value of a share of stock is the portion of net worth assignable to one share of a given class of stock. The procedure in figuring it, if there is only one issue outstanding, is to add together the capital stock and surplus and divide this sum by the number of shares issued. If a concern has a capital stock of $100,000, represented by shares with or without par value, and a surplus of $50,000, while the number of shares is 1,000, the book value of each share is 150,000 divided by 1,000 or $150.

Book Value of Preferred Stock.—In the case of non-cumulative preferred stock, the book value is the par value, the stated value in the event the shares are without par value and have been given a stated value, or paid-in value when no-par shares have been given no stated value. When, however, there are dividends in arrears on cumulative preferred stock the amount due on each share should be added to the par, stated, or paid-in value.

The liquidating provisions in the agreement with preferred stockholders complicate the calculation of the book value of such issues. The premium to be paid on the retirement of preferred stock is a proper addition to the book value. Preferred stock may be participating as to assets, and may accordingly share as a class equally with the common or be entitled to a certain proportion, after par values of both the preferred and the common have been paid off; or it may participate on an equal share-for-share basis with the common stock.

The presence of preferred stock makes necessary the subtraction of the total book value of the outstanding preferred shares from total net worth; dividing the remainder by the number of outstanding common shares yields the book value of a common share.

CORPUS AND INCOME OF A TRUST FUND

The corpus of a trust fund is the principal amount, while the income is the gains which accrue from its investment or other uses made of it. Trust funds are frequently established giving one beneficiary, as a wife, the right to the income of the trust during her life, while giving another party, as a son, the right to the corpus upon the death of the wife. The wife is in legal

terminology known as the life-tenant of the trust estate, while the son is known as the remainderman. What is corpus and what is income is sometimes difficult to determine. The intention of the creator of the trust is binding if it can be ascertained. Otherwise general legal rules must be followed, the life-tenant being entitled to the exact legal net income, and the remainderman to the exact legal principal. This legal income is not always the same as taxable income or income as determined by general accounting principles.

REAL PROPERTY—VARIOUS FORMS OF INTERESTS

Property Defined.—In the eyes of the law property is not the thing itself but the right to use, hold, and dispose of the thing, or if it be not the whole right, then an interest in that right. By ordinary usage, however, the word "property" is used to describe the thing itself, but it is important to bear in mind this technical difference.

All property is either realty or personalty. Realty is land and buildings and those other things that are fixed to either, such as trees, shrubs, plumbing fixtures, sidewalk, etc. All other property is personalty, or property which is movable and is not fixed to land or buildings, including such things as furniture, rugs, automobiles, cattle, etc. All items classified as realty remain with, and as a part of, the land and buildings in any sale or transfer, regardless of who may have bought or installed them. Real property may become personal property, which again may become real property. A growing tree is real property; cut it into lumber and it becomes personal property and build that lumber into a building and it becomes real property.

An interest in real property is known as an estate, and the more common estates are explained below.

Fee Simple.—The estate in fee simple, sometimes called the fee, is the largest possible interest in real property and is the common form of ownership. Subject only to the limitations resulting from the rights of the state to tax such property, to condemn and appropriate it for public use after compensating the owner, to control the use of the property for the benefit of the public at large, and to take it if the deceased has left no will and has no heirs. an owner in fee may do entirely as he likes with his

property and his right continues through his life and at death automatically descends to his heirs-at-law unless otherwise disposed of by will.

Life Estate and Remainder.—A owns a parcel of land in fee. He deeds it to B for B's lifetime, with a provision that upon B's death the property shall go to C, or his heirs. B then has a life estate and is a life-tenant, that is, he has a full fee interest but only during his lifetime. C owns a remainder, that is, the right to receive title upon the death of B.

Dower.—This is the interest given by the state to the wife of the owner of real estate. By it, at his death, the wife is entitled to receive one-third of the income from all property owned by the husband. On account of this interest of the wife, the husband, during his life, cannot dispose of any property without her consent, which is generally expressed by her joining in the deed.

Curtesy.—Curtesy is an interest, similar to dower, possessed by the husband in real property held by the wife at her death. But the wife may deed, will, or otherwise dispose of her property during her lifetime without the consent of the husband.

Both curtesy and dower have been abolished in New York and Connecticut.

Leasehold.—The owner of any estate or interest in real property may permit to another a limited use of all or some part of his rights to that property for a definite term of years. Such an interest in real property is known as a leasehold. The agreement by which such rights are granted is the lease; the owner of the property is the landlord or lessor; and the user of the property is the tenant or lessee.

REAL ESTATE DEED

The deed is the instrument by which title to real property is transferred. Following is a common type of deed.

THIS INDENTURE, made the . day of

. .. . nineteen hundred and . . . . .

Between ....

. .. . , part . of the first part,

and ....

.... , part .. of the second part,

WITNESSETH, that the part of the first part, in consideration of . .. . Dollars, lawful money of the United States, .
paid by the part of the second part, do . hereby grant and release unto the part of the second part, ... and assigns forever,
ALL .. ..
Together with the appurtenances and all the estate and rights of the part. . of the first part in and to said premises.
To Have and to Hold the premises herein granted unto the part .of the second part, ...and assigns forever.
And said . ...
covenant as follows:

First—That said ....
seized of the said premises in fee simple, and ha....good right to convey the same;

Second.—That the part . of the second part shall quietly enjoy the said premises;

Third.—That the said premises are free from encumbrances;

Fourth.—That the part of the first part will execute or procure any further necessary assurance of the title to said premises;

Fifth.—That said . . ..
will forever warrant the title to said premises.

IN WITNESS WHEREOF, the part of the first part ha . hereunto set . hand . and seal .the day and year first above written.

In presence of: .. ..
. ...

State of ....
County of .. .. } ss.:

On the . day of......... . . .., nineteen hundred and thirty. .. ..
before me came . . . .
to me known to be the individual described in, and who executed, the foregoing instrument, and acknowledged to me that.. he....executed the same.

State of ....
County of . . .. } ss.:

On the . day of ...., nineteen hundred and thirty .. .
before me came . .. . , the subscribing witness to the foregoing instrument, with whom I am personally acquainted, who, being by me duly sworn, did depose and say that he resides in. ...
. ... that he knows . ...
. . .. to be the individual described in, and who executed the foregoing instrument; that he, said subscribing witness, was present, and saw . ... . . execute the same; and that .he, said witness, at the same time subscribed h name as witness thereto.

REAL ESTATE MORTGAGE

The mortgage is the instrument by which real property is pledged as security for the debt. The borrower is the mortgagor, and the lender is the mortgagee. The following is a form of the real estate mortgage.

THIS MORTGAGE, made the day of nineteen hundred and . , between . . . ., the mortgagor, and .. .. , the mortgagee.

WITNESSETH, that to secure the payment of an indebtedness in the sum of . . . dollars, lawful money of the United States, to be paid on the . . .. day of ... , nineteen hundred and . . .. , with interest thereon to be computed from . . . .., at the rate of ... per centum per annum, and to be paid . . . according to a certain bond or obligation bearing even date herewith, the mortgagor hereby mortgages to the mortgagee.

And the Mortgagor covenants with the Mortgagee as follows:

1. That the mortgagor will pay the indebtedness as hereinbefore provided.
2 That the mortgagor will keep the buildings on the premises insured against loss by fire for the benefit of the mortgagee.
3 That no building on the premises shall be removed or demolished without the consent of the mortgagee.
4. That the whole of said principal sum shall become due after default in the payment of any installment of principal or of interest for days, or after default in the payment of any tax, water rate or assessment for days after notice and demand.
5. That the holder of this mortgage, in any action to foreclose it, shall be entitled to the appointment of a receiver.
6. That the mortgagor will pay all taxes, assessments or water rates, and in default thereof, the mortgagee may pay the same.
7. That the mortgagor within ... . days upon request in person or within .... .. days upon request by mail will furnish a statement of the amount due on this mortgage.
8. That notice and demand or request may be in writing and may be served in person or by mail.
9. That the mortgagor warrants the title to the premises.

IN WITNESS WHEREOF, this mortgage has been duly executed by the mortgagor.

....
....

IN PRESENCE OF:

....

STATE OF .. . . }
COUNTY OF .... } ss.:

On the .day of.. , nineteen hundred and .

, before me came to me known and known to me to be the individual described in, and who executed, the foregoing instrument, and acknowledged to me that he executed the same.

STATE OF .. . . } ss.:
COUNTY OF .. ... }

On the day of . .. . , nineteen hundred and . . . . , before me came . . , the subscribing witness to the foregoing instrument, with whom I am personally acquainted, who, being by me duly sworn, did depose and say that he resides in . , that he knows to be the individual described in, and who executed the foregoing instrument; that he, said subscribing witness, was present, and saw execute the same; and that he, said witness, at the same time, subscribed h name as witness thereto.

STATE OF .... } ss.:
COUNTY OF .... }

On the ... . day of............. , nineteen hundred and . , before me came .. . . , to me known, who, being by me duly sworn, did depose and say that he resides in ., that he is the of , the corporation described in, and which executed, the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the board of . .. . . of said corporation; and that he signed h .name thereto by like order.

LAND CONTRACT

A land contract, sometimes called a contract for deed, is a formal contract by which the purchaser of real estate agrees to pay an agreed sum, upon the receipt of which the seller agrees to deliver to the purchaser a deed for the property. By use of the land contract the seller does not part with title to the property until the required payments are made, thus avoiding the necessity, delay, and expense of foreclosure in the event of the buyer's default. Cancellation of the land contract is effected within a month or so, whereas a mortgage foreclosure might require a year or more. Land contracts are used largely in the sale of lots, as at public auctions of subdivisions. Usually such sales are made on a small down payment at the time of signing, with a provision that when the buyer has made further instalment payments reducing the principal to a certain amount the seller will deed the property to buyer subject to a mortgage for unpaid balance.

LEASES

The relation of landlord and tenant arises when an owner (lessor) grants to another, as tenant (lessee), the right to use real property in return for a definite periodical return in money, goods, or services. That which is received by the landlord (owner) for the use of the property is called rent.

Many contingencies may arise for which provision must be made by special clauses or covenants in the lease. Practically all of these covenants are inserted for the purpose of protecting the landlord. The only assurance the tenant gets is that he shall quietly and peaceably enjoy the use of the premises for the term of the lease, provided he pays the rent and performs all the covenants of the lease. Some of the more important special clauses or covenants included in a lease provide as follows:

1. The tenant will take care of the premises, returning them to the landlord at the end of the term in good condition.
2. The tenant shall comply with orders issued by the various governmental departments having jurisdiction
3. The tenant shall not assign the lease, sublet the premises, or make any alteration without the landlord's consent in writing.
4. The landlord and his agents may inspect the premises in reasonable hours, making necessary repairs and alterations. The landlord shall have the right to show premises, under certain restrictions, to prospective purchasers or tenants.
5. If the premises become vacant during the term, the landlord shall have the privilege of re-entry, and may also re-let the premises as the agent of the tenant.
6. Tenant frequently holds landlord free from liability for damages to both persons and property.

SIMPLE INTEREST—CALCULATION AND TABLES

Computing the Number of Days Between Dates.—In computing days between two dates, either the first day is included and the last day excluded or the first day is excluded and the last day included. Business and commercial houses as a rule count only the first or last day, but not both.

Example. To find the number of days between July 12 and October 23. Excluding July 12, there are in

July . .	19 days
August . .	31 days
September	30 days
October	23 days
Total	103 days

Brokers and bankers frequently charge interest by counting both the first and last days when the interest is payable to themselves. In the illustration above, there would thus be 104 days between July 12 and October 23.

When banks pay interest a widely different rule is applied, in all instances benefiting the bank and not the customer. As these rules vary so much, it is best to obtain the information from one's own bank.

The stock-broker, by rendering accounts monthly and calculating interest for the same period, compounds interest monthly.

The Number of Each Day of the Year Counting from January 1

Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1	32	60	91	121	152	182	213	244	274	305	335
2	2	33	61	92	122	153	183	214	245	275	306	336
3	3	34	62	93	123	154	184	215	246	276	307	337
4	4	35	63	94	124	155	185	216	247	277	308	338
5	5	36	64	95	125	156	186	217	248	278	309	339
6	6	37	65	96	126	157	187	218	249	279	310	340
7	7	38	66	97	127	158	188	219	250	280	311	341
8	8	39	67	98	128	159	189	220	251	281	312	342
9	9	40	68	99	129	160	190	221	252	282	313	343
10	10	41	69	100	130	161	191	222	253	283	314	344
11	11	42	70	101	131	162	192	223	254	284	315	345
12	12	43	71	102	132	163	193	224	255	285	316	346
13	13	44	72	103	133	164	194	225	256	286	317	347
14	14	45	73	104	134	165	195	226	257	287	318	348
15	15	46	74	105	135	166	196	227	258	288	319	349
16	16	47	75	106	136	167	197	228	259	289	320	350
17	17	48	76	107	137	168	198	229	260	290	321	351
18	18	49	77	108	138	169	199	230	261	291	322	352
19	19	50	78	109	139	170	200	231	262	292	323	353
20	20	51	79	110	140	171	201	232	263	293	324	354
21	21	52	80	111	141	172	202	233	264	294	325	355
22	22	53	81	112	142	173	203	234	265	295	326	356
23	23	54	82	113	143	174	204	235	266	296	327	357
24	24	55	83	114	144	175	205	236	267	297	328	358
25	25	56	84	115	145	176	206	237	268	298	329	359
26	26	57	85	116	146	177	207	238	269	299	330	360
27	27	58	86	117	147	178	208	239	270	300	331	361
28	28	59	87	118	148	179	209	240	271	301	332	362
29	29		88	119	149	180	210	241	272	302	333	363
30	30		89	120	150	181	211	242	273	303	334	364
31	31		90		151		212	243		304		365

NOTE.—For leap years the number of the day is one greater than the tabular number after February 28.

To simplify the labor of determining the number of days between any two dates, the table above gives the number of days from January 1 to any other day of the year. Taking the problem just stated and solving it by means of the table, from January 1 to July 12 there are 193 days, and from January 1 to October 23 there are 296 days, or a difference of 103 days. If it is a leap year, there would be 194 days and 297 respectively, or still 103 days.

Exact Interest.—Exact interest is simple interest computed on the basis of 365 days to the year. Ordinary interest, on the other hand, is simple interest computed on the basis of 360 days to the year.

Computation by Formula.—When interest tables are not available, exact interest may be obtained by substituting in the formula, principal × rate × time, the rate per annum in hundredths and the time in years or multiples of a year.

Example. To find the interest on $10,428.40 for 193 days at 4½%.

$$\$10{,}428.40 \times \frac{9}{200} \times \frac{193}{365} = \$248.14$$

Computation by Use of Interest Tables.—By using the 5% exact interest table (page 133), the exact interest on $8,426.10 for 223 days is found to be $257.40.

Short-Cut Computation of Ordinary Interest at 6%.—The rate of 6% per annum is in more common use than is any other rate. As 6 is a multiple of 12, the number of months in the year, it lends itself to certain mathematical short cuts. Also, as 30 days per month gives 360 days to the year, this is often used as a basis upon which ordinary interest computations are made. On this basis the rate per month is ½ of 1%, or 1% for 60 days. Therefore, in order to compute the interest for 60 days on any amount when the rate is 6%, it is only necessary to move the decimal point two places to the left. For example, the interest on $1,580 at 6% for 60 days is $15.80.

If the number of days is a multiple of 6, the solution of any interest problem under this method is simplified, as is shown by the following examples.

Example 1. Find the interest on $S47 15 for 108 days at 6%:

	$ 8 4715	interest	for	60	days
	16 9430	"	"	120	"
Less:	1 6943	"	"	12	"
	$15.2487	"	"	108	"

The interest is $15.25.

Example 2. Find the interest on $1,430.12 for 83 days at 6%:

$14 3012	interest	for	60	days
4.7671	"	"	20	"
.7151	"	"	3	"
$19.7834	"	"	83	"

The interest is $19.78.

Short-Cut Interest Computation by Interchange of Principal and Days.—When the principal is a factor or multiple of 6, interchange principal and days. The interest on $4,800 for 27 days is the same as the interest on $27 for 4,800 days. The interest on $27 for 60 days equals $.27, secured by moving the decimal point two places to the left. Multiplying $.27 by 80 gives $21.60, the interest on $27 for 4,800 days, or its equivalent, the interest on $4,800 for 27 days.

Adjusting Interest Computation from 360- to 365-Day Basis.—When interest has been computed on the basis of 360 days as in preceding illustrations, and it is desired to adjust it to a 365-day basis, the amount of the interest should be decreased by 1/73 of itself, because the difference of 5 days is 1/73 of 365. Thus, to find the exact interest on $942.52 for 19 days at 6%, take the amount computed on a 360-day basis, $2.98465, and from this amount deduct 1/73 of itself, which leaves $2.94377 as the interest for the given time and rate on a 365-day basis.

Explanation of reason why 1/73 is subtracted from ordinary interest:

1 day's int. on 360-day basis is 1/360 of year's int.
" " " " 365-day " " 1/365 " " "
1 day's exact int.: 1 day's ordinary int $= 1/365 : 1/360$
or as $1/73 : 1/72 = 1/73 \times 72/1 = 72/73$
or, exact int : Ordinary int. $= 72 . 73$

Short-Cut Interest Computation When Rate Differs from 6%.—The following additional rules are to be applied when the rate of interest differs from 6%. Point off 2 places of decimals to the left for

72 days at 5%	90 days at 4%
80 days at 4½%	120 days at 3%

4% Interest Table

EXACT INTEREST ON 365-DAY BASIS AT 4%, BY DAYS FROM 1 TO 360 DAYS

Ds.	$1,000	$2,000	$3,000	$4,000	$5,000	$6,000	$7,000	$8,000	$9,000
1	1096	2192	3288	4384	5479	6575	7671	8767	9863
2	2192	4384	6575	8767	1 0959	1 3151	1 5342	1 7534	1 9726
3	3288	.6575	0863	1 3151	1 6438	1 9726	2 3014	2 6301	2 9589
4	4384	.8767	1 3151	1 7534	2 1918	2 6301	3 0685	3 5068	3 9452
5	5479	1 0959	1 6438	2 1918	2 7397	3 2877	3 8356	4 3836	4 9315
6	6575	1 3151	1 9726	2 6301	3 2877	3 9452	4 6027	5 2603	5 9178
7	7671	1 5342	2 3014	3 0685	3 8356	4 6027	5 3699	6 1370	6 9041
8	8767	1 7534	2 6301	3 5068	4 3836	5 2603	6 1370	7 0137	7 8904
9	.9863	1 9726	2 9589	3 9452	4 9315	5 9178	6 9041	7 8904	8.8767
10	1 0959	2 1918	3 2877	4 3836	5 4795	6 5753	7 6712	8 7671	9 8630
20	2 1918	4 3836	6 5753	8 7671	10 9589	13 1507	15 3425	17 5342	19 7260
30	3 2877	6 5753	9 8630	13 1507	16 4384	19 7260	23 0137	26 3014	29 5890
40	4 3836	8 7671	13 1507	17 5342	21 9178	26 3014	30 6849	35 0685	39 4521
50	5 4795	10 9589	16 4384	21 9178	27 3973	32 8767	38 3562	43 8356	49 3151
60	6 5753	13 1507	19 7260	26 3014	32 8767	39 4521	46 0274	52 6027	59 1781
70	7 6712	15 3425	23 0137	30 6849	38 3562	46 0274	53 6986	61 3699	69 0411
80	8 7671	17 5342	26 3014	35 0685	43 8356	52 6027	61 3699	70 1370	78 9041
90	9 8630	19 7260	29 5890	39 4521	49 3151	59 1781	69 0411	78 9041	88 7671
100	10 9589	21 9178	32 8767	43 8356	54 7945	65 7534	76 7123	87 6712	98 6301
110	12 0548	24 1096	36 1644	48 2192	60 2740	72 3288	84 3836	96 4384	108 4932
120	13 1507	26 3014	39 4521	52 6027	65 7534	78 9041	92 0548	105 2055	118 3562
130	14 2466	28 4932	42 7397	56 9863	71 2329	85 4795	99 7260	113 9726	128 2192
140	15 3425	30 6849	46 0274	61 3699	76 7123	92 0548	107 3973	122 7397	138 0822
150	16 4384	32 8767	49 3151	65 7534	82 1918	98 6301	115 0685	131 5068	147 9452
160	17 5342	35 0685	52 6027	70 1370	87 6712	105 2055	122 7397	140 2740	157 8082
170	18 6301	37 2603	55 8904	74 5205	93 1507	111 7808	130 4110	149 0411	167 6712
180	19 7260	39 4521	59 1781	78 9041	98 6301	118 3562	138 0822	157 8082	177 5342
190	20 8219	41 6438	62 4658	83 2877	104 1096	124 9315	145 7534	166 5753	187 3973
200	21 9178	43 8356	65 7534	87 6712	109 5890	131 5068	153 4247	175 3425	197 2603
210	23 0137	46 0274	69 0411	92 0548	115 0685	138 0822	161 0959	184 1096	207 1233
220	24 1096	48 2192	72 3288	96 4384	120 5479	144 6575	168 7671	192 8767	216 9863
230	25 2055	50 4110	75 6164	100 8219	126 0274	151 2329	176 4384	201 6438	226 8493
240	26 3014	52 6027	78 9041	105 2055	131.5068	157 8082	184 1096	210 4110	236 7123
250	27 3973	54.7945	82 1918	109 5890	136 9863	164 3836	191 7808	219 1781	246 5753
260	28 4932	56 9863	85 4795	113 9726	142 4658	170 9589	199 4521	227 9452	256 4384
270	29 5890	59 1781	88 7671	118 3562	147 9452	177 5342	207 1233	236 7123	266 3014
280	30 6849	61 3699	92 0548	122 7397	153 4247	184 1096	214 7945	245 4795	276 1644
290	31 7808	63 5616	95 3425	127 1233	158 9041	190.6849	222 4658	254 2466	286 0274
300	32 8767	65 7534	98 6301	131 5068	164 3836	197 2603	230 1370	263.0137	295 8904
310	33 9726	67 9452	101 9178	135 8904	169 8630	203 8356	237 8082	271 7808	305 7534
320	35 0685	70 1370	105 2055	140 2740	175 3425	210 4110	245 4795	280 5479	315 6164
330	36 1644	72 3288	108 4932	144 6575	180 8219	216 9863	253 1507	289 3151	325 4795
340	37 2603	74 5205	111 7808	149 0411	186 3014	223 5616	260 8219	298 0822	335 3425
350	38 3562	76 7123	115 0685	153 4247	191 7808	230 1370	268 4932	306 8493	345 2055
360	39 4521	78 9041	118 3562	157 8082	197 2603	236 7123	276 1644	315 6164	355 0685

5% Interest Table

EXACT INTEREST ON 365-DAY BASIS AT 5%, BY DAYS FROM 1 TO 360 DAYS

Ds.	$1,000	$2,000	$3,000	$4,000	$5,000	$6,000	$7,000	$8,000	$9,000
1	.1370	.2740	.4110	5749	6849	8219	9589	1 0959	1 2329
2	.2740	5479	8219	1 0959	1 3699	1 6438	1 9178	2 1918	2 4658
3	4110	8219	1 2329	1 6438	2 0548	2 4657	2 8767	3 2877	3 6986
4	.5479	1 0959	1 6438	2 1918	2 7397	3 2877	3 8356	4 3836	4 9315
5	.6849	1 3699	2.0548	2.7397	3 4247	4 1096	4 7945	5 4795	6 1644
6	.8219	1 6438	2 4658	3 2877	4 1096	4 9315	5 7534	6 5753	7 3973
7	9589	1 9178	2 8767	3 8356	4 7945	5 7534	6 7123	7 6712	8 6301
8	1.0959	2 1918	3 2877	4 3836	5 4795	6 5753	7 6712	8 7671	9 8630
9	1.2329	2 4658	3.6986	4.9315	6 1644	7 3973	8.6301	9 8630	11 0959
10	1 3699	2 7397	4 1096	5 4795	6 8493	8 2192	9 5890	10 9589	12 3288
20	2 7397	5 4795	8 2192	10 9589	13 6986	16 4384	19 1781	21 9178	24 6575
30	4 1096	8 2192	12 3288	16 4384	20 5479	24 6575	28 7671	32 8767	36 9863
40	5 4795	10 9589	16 4384	21 9178	27 3973	32 8767	38 3562	43 8356	49 3151
50	6.8493	13 6986	20 5479	27 3973	34 2466	41.0959	47 9452	54 7945	61 6438
60	8 2192	16 4384	24 6575	32 8767	41 0959	49 3151	57 5342	65 7534	73 9726
70	9 5890	19 1781	28 7671	38 3562	47 9452	57 5342	67 1233	76.7123	86 3014
80	10 9589	21 9178	32 8767	43 8356	54 7945	65 7334	76 7123	87 6712	98 6301
90	12.3288	24 6575	36 9863	49 3151	61 6438	73 9726	86 3014	98 6301	110 9589
100	13 6986	27 3973	41.0959	54 7945	68 4931	82.1918	95 8904	109 5890	123.2877
110	15 0685	30 1370	45 2055	60 2740	75 3425	90 4110	105 4795	120 5479	135 6164
120	16 4384	32 8767	49 3151	65 7534	82 1918	98 6301	115 0685	131 5068	147 9452
130	17 8082	35 6164	53 4247	71 2329	89 0411	106 8493	124 6575	142 4658	160 2740
140	19 1781	38 3562	57 5342	76 7123	95 8904	115 0685	134 2466	153 4247	172 6027
150	20 5479	41 0959	61.6438	82.1918	102 7397	123 2877	143 8356	164 3836	184 9315
160	21 9178	43 8356	65 7534	87 6712	109 5890	131 5068	153 4247	175 3425	197 2603
170	23 2877	46 5753	69 8630	93 1507	116 4384	139 7260	163 0137	186.3014	209 5890
180	24 6575	49 3151	73 9726	98.6301	123 2877	147 9452	172 6027	197 2603	221 9178
190	26 0274	52 0548	78 0822	104.1096	130 1370	156 1644	182 1918	208 2192	234 2466
200	27 3973	54 7945	82 1918	109 5890	136 9863	164 3836	191 7808	219 1781	246 5753
210	28 7671	57 5342	86 3014	115 0685	143 8356	172 6027	201 3699	230 1370	258 9041
220	30 1370	60 2740	90 4110	120 5479	150 6849	180 8219	210 9589	241 0959	271 2329
230	31 5068	63 0137	94 5205	126 0274	157 5342	189 0411	220 5479	252 0548	283.5616
240	32 8767	65 7534	98 6301	131 5068	164 3836	197 2603	230 1370	263 0137	295 8904
250	34 2466	68 4932	102 7397	136.9863	171.2329	205 4795	239.7260	273.9726	308 2192
260	35 6164	71 2329	106 8493	142 4658	178 0822	213 6986	249.3151	284 9315	320 5479
270	36 9863	73 9726	110 9589	147 9452	184 9315	221 9178	258 9041	295 8904	332 8767
280	38 3562	76 7123	115 0685	153 4247	191.7808	230 1370	268 4932	306 8493	345 2055
290	39 7260	79 4521	119 1781	158 9041	198 6301	238 3562	278.0822	317 8082	357 5342
300	41 0959	82 1918	123.2877	164.3836	205 4795	246 5753	287.6712	328.7671	369 8630
310	42 4658	84 9315	127 3973	169.8630	212 3288	254 7945	297.2603	339 7260	382 1918
320	43 8356	87 6712	131 5068	175 3425	219 1781	263 0137	306.8493	350 6849	394 5205
330	45 2055	90 4110	135 6164	180 8219	226 0274	271.2329	316 4384	361 6438	406 8493
340	46 5753	93 1507	139 7260	186 3014	232 8767	279 4521	326 0274	372 6027	419 1781
350	47 9452	95 8904	143 8356	191.7808	239.7260	287 6712	335 6164	383 5616	431 5068
360	49 3151	98 6301	147 9452	197.2603	246 5753	295.8904	345.2055	394 5205	443 8356

6% Interest Table

EXACT INTEREST ON 365-DAY BASIS AT 6%, BY DAYS FROM 1 TO 360 DAYS

Da.	$1,000	$2,000	$3,000	$4,000	$5,000	$6,000	$7,000	$8,000	$9,000
1	1644	3288	4932	6575	.8219	9863	1 1507	1 3151	1 4795
2	3288	6575	9863	1 3151	1 6438	1 9726	2 3014	2 6301	2 9589
3	4932	9863	1 4795	1 9726	2 4658	2 9589	3 4521	3 9452	4.4384
4	6575	1 3151	1 9726	2 6301	3 2877	3 9452	4 6027	5 2603	5 9178
5	8219	1 6438	2 4658	3 2877	4 1096	4 9315	5 7534	6 5753	7 3973
6	9863	1 9726	2 9589	3 9452	4 9315	5 9178	6 9041	7 8904	8 8767
7	1 1507	2 3014	3 4521	4 6027	5.7534	6 9041	8 0548	9 2055	10 3562
8	1 3151	2 6301	3 9452	5 2603	6 5753	7 8904	9 2055	10 5205	11 8356
9	1 4795	2 9589	4.4384	5 9178	7.3973	8 8767	10 3562	11 8356	13 3151
10	1 6438	3 2877	4 9315	6 5753	8 2192	9 8630	11 5068	13 1507	14 7945
20	3 2877	6 5753	9 8630	13 1507	16 4384	19 7260	23 0137	26 3014	29 5890
30	4 9315	9 8630	14 7945	19 7260	24 6575	29 5890	34 5205	39 4521	44 3836
40	6 5753	13 1507	19 7260	26 3014	32 8767	39 4521	46 0274	52 6027	59 1781
50	8 2192	16 4384	24.6575	32 8767	41.0959	49 3151	57 5342	65 7534	73 9726
60	9 8630	19 7260	29 5890	39 4521	49 3151	59 1781	69 0411	78 9041	88 7671
70	11 5068	23 0137	34 5205	46 0274	57 5342	69 0411	80 5479	92 0548	103 5616
80	13 1507	26 3014	39 4521	52 6027	65 7534	78 9041	92 0548	105 2055	118 3562
90	14 7945	29 5890	44 3836	59 1781	73 9726	88 7671	103 5616	118 3562	133 1507
100	16.4384	32 8767	49.3151	65.7534	82.1918	98 6301	115 0685	131 5068	147 9452
110	18 0822	36 1644	54 2466	72 3288	90 4110	108 4932	126 5753	144 6575	162 7397
120	19 7260	39 4521	59 1781	78 9041	98 6301	118 3562	138 0822	157 8082	177 5342
130	21 3699	42 7397	64 1096	85 4795	106 8493	128 2192	149 5890	170 9589	192 3288
140	23 0137	46 0274	69 0411	92 0548	115 0685	138 0822	161 0959	184 1096	207 1233
150	24 6575	49 3151	73 9726	98 6301	123 2877	147.9452	172 6027	197 2603	221 9178
160	26.3014	52 6027	78 9041	105 2055	131 5068	157 8082	184 1096	210 4110	236 7123
170	27 9452	55 8904	83 8356	111 7808	139 7260	167 6712	195 6164	223 5616	251 5068
180	29 5890	59 1781	88 7671	118 3562	147 9452	177 5342	207.1233	236 7123	266 3014
190	31 2329	62 4658	93 6986	124 9315	156 1644	187 3973	218 6301	249 8630	281 0959
200	32.8767	65 7534	98 6301	131 5068	164 3836	197 2603	230 1370	263 0137	295 8904
210	34 5205	69 0411	103 5616	138 0822	172 6027	207 1233	241 6438	276 1644	310 6849
220	36 1644	72 3288	108 4932	144 6575	180 8219	216 9863	253 1507	289 3151	325 4795
230	37 8082	75 6164	113 4247	151 2329	189 0411	226 8493	264 6575	302 4658	340 2740
240	39 4521	78 9041	118 3562	157 8082	197 2603	236 7123	276 1644	315 6164	355 0685
250	41 0959	82 1918	123 2877	164 3836	205.4795	246 5753	287 6712	328 7671	369.8630
260	42 7397	85 4795	128 2192	170 9589	213 6986	256 4384	299 1781	341 9178	384 6575
270	44 3836	88 7671	133 1507	177 5342	221 9178	266 3014	310 6849	355 0685	399 4521
280	46 0274	92 0548	138 0822	184 1096	230 1370	276 1644	322 1918	368 2192	414 2466
290	47 6712	95 3425	143 0137	190 6849	238 3562	286 0274	333 6986	381 3699	429 0411
300	49 3151	98 6301	147 9452	197 2603	246 5753	295 8904	345 2055	394 5205	443 8356
310	50 9589	101 9178	152 8767	203 8356	254 7945	305 7534	356 7123	407 6712	458 6301
320	52 6027	105 2055	157 8082	210 4110	263 0137	315 6164	368 2192	420 8219	473 4247
330	54 2466	108 4932	162 7397	216 9863	271 2329	325 4795	379 7260	433 9726	488 2192
340	55 8904	111 7808	167 6712	223 5616	279 4521	335 3425	391 2329	447 1233	503 0137
350	57 5342	115 0685	172 6027	230 1370	287 6712	345 2055	402 7397	460 2740	517 8082
360	59 1781	118.3562	177 5342	236 7123	295 8904	355 0685	414 2466	473 4247	532.6027

The number of days were obtained in each instance by dividing 360 by the rate.

Example. To find the interest on \$5,186 00 at 5% for 90 days:

	\$51 86	interest for 72 days
¼ of \$51 86 or	12 97	" " 18 days
	\$64 83	" " 90 days at 5%

At 4½% the interest for 90 days would be as follows:

	\$51.86	interest for 80 days
⅛ of \$51 86 or	6 48	" " 10 days
	\$58 34	" " 90 days at 4½%

Alternative Method When Rate Differs from 6%.—Where the number of days upon which the interest is to be computed is not a multiple of the days shown in the above tabulation, the following rule is to be applied:

1. Secure the interest for 6 days at 6% by pointing off 3 places in the principal.
2. Multiply this result by the number of days interest is reckoned, which gives interest for six times the required number of days.
3. Divide this result by 6.

Example. To find the interest on \$942.52 for 19 days at 6%:

\$ .94252	interest for 6 days
19	
848268	
94252	
\$17.90788	interest for 114 days

\$17 90788 ÷ 6 = \$2.98465 interest for 19 days

With a rate other than 6%, find the interest at 6% as above and adjust the interest to the required basis. For example, with a rate of 5% the interest on \$942.52 for 19 days is \$2.48721. This would be found by taking 5/6 of the interest at 6% which was \$2.98465.

With a rate of 7%, take 7/6 of the interest at 6%, which gives \$3.48209.

Interest on U. S. Government Securities.—Interest on bonds or notes issued by the United States government is computed on the basis of exact interest for the exact number of days falling within the interest period. Thus, the number of days in the 6 months' periods ending on the 15th of March, May, July and August, during ordinary years, is 181 days, and in leap years is 182. The number of days in the 6 months' periods ending on the 15th of April and June in ordinary years is 182, in leap years is 183; for 6 months ending on the 15th day of October and Decem-

ber in both ordinary and leap years the number of days is 183. As February does not enter into the 6 months' periods ending on the 15th of January, February, September and November, the number of days in these periods is 184, whether in ordinary or leap years.

Interest for 1 day on $1,000 Bond

Rate per Annum %	Interest period ending on the 1st or 15th of— Jan., Feb., Sept., Nov., or during any half-year comprising 184 days	Oct., Dec., April,* June,* or during any half-year comprising 183 days	April, June, Mar.,* May,* July,* Aug.,* or during any half-year comprising 182 days	Mar., May, July, Aug., or during any half-year comprising 181 days
2	$.05434783	$.05464481	$ 05494505	$ 05524862
2½	.06793478	.06830601	06868132	06906077
2¾	.07472826	.07513661	.07554945	.07596685
3	.08152174	.08196721	.08241758	.08287293
3½	.09510870	.09562842	.09615385	.09668508
3¾	.10190217	.10245902	.10302198	.10359116
4	.10869565	.10928962	.10989011	.11049724
4⅛	.11209239	.11270492	11332418	11395028
4¼	.11548913	.11612022	11675824	.11740331
4⅜	.11888587	.11953552	.12019231	.12085635
4½	.12228261	.12295082	.12362637	.12430939
4¾	.12907609	.12978142	.13049451	.13121547
5	.13586957	.13661202	.13736264	.13812155
5¼	.14266304	.14344262	.14423077	.14502762
5½	.14945652	.15027322	.15109890	.15193370
5¾	.15625000	.15710383	.15796703	.15883978
6	.16304347	.16393443	.16483516	.16574586

*Leap Year.

As an example, the interest on $10,000 U. S. bonds, 4¼%, payable April 15, in an ordinary year, which bonds had been held for 174 days, is $203.16. This figure is obtained as follows:

The number of days in the 6 months' period is 182, or for the 12 months' period it would be 364.

$$\$10{,}000 \times \frac{174}{364} \times \frac{17}{400} = \$203.16$$

The interest on $10,000 U. S. bonds, 4¼%, due September 15, which have been held for 174 days is $200.95. Though the principal, interest rate, and time in days are the same as in the previous illustration, there is a difference of $2.21 in interest. This is due to the fact that the number of days in the 6 months' interest period is 184, or 368 days for the 12 months' period. The computation is as follows:

$$\$10{,}000 \times \frac{174}{368} \times \frac{17}{400} = \$200.95$$

PARTIAL PAYMENT RULES FOR COMPUTING INTEREST

When a short-term indebtedness is reduced through periodical payments, the interest upon the indebtedness is computed upon either one of two bases. The basis commonly used among business men is known as the "Merchant's Rule." This method gives the results more quickly but not as accurately as the computation under the other, the "United States Rule."

"Merchant's Rule."—In following the "Merchant's Rule," the interest is computed upon the total indebtedness from the date of inception to the date of maturity, and the interest earned from the date each partial payment is made to the date of maturity of the debt is deducted therefrom.

Example. A merchant obligates himself to liquidate a debt of $7,500 incurred January 1 and due on June 1 with interest at 6% per annum by making the following payments: $2,500 on February 1, $2,500 on March 15, $1,500 on May 1 and the balance on June 1.

Original debt		$7,500 00
Interest on $7,500 for 5 months		$ 187.50
Less:		
Interest on $2,500 for 4 months	$50 00	
Interest on 2,500 for 2½ months	31.25	
Interest on 1,500 for 1 month	7.50	88.75
Interest due June 1		98.75
Unpaid principal		1,000 00
Balance due June 1		$1,098.75

"United States Rule."—Under the "United States Rule," so-called from its approval by the U. S. Supreme Court, each instalment is first applied against the interest due at the date the partial payment is made, and the balance of the instalment is then applied to reduce the principal. Interest is always computed upon the reduced principal as in the solution below:

Original debt		$7,500.00
Payment made February 1	$2,500.00	
Interest on $7,500 for 1 month	37 50	2,462 50
		5,037.50
Payment made March 15	2,500 00	
Interest on $5,037.50 for 1½ months	37 78	2,462 22
		2,575.28
Payment made May 1	1,500.00	
Interest on $2,575.28 for 1½ months	19 31	1,480.69
		1,094.59
Interest on $1,094.59 for 1 month to June 1		5 47
Balance due June 1		$1,100 06

COMPOUND INTEREST AND TABLES

Interest Compounded Periodically.—When interest is added to the principal at stated uniform intervals of time, thus increasing the principal at end of each period, the interest is said to be compounded periodically. The period is usually a quarter of a year, a half-year, or a year, although it may be any fractional part of a year.

The accumulated amount obtained at the close of the final period of time is called the compound amount and the difference between the compound amount and the original principal is the compound interest.

Compound interest cannot be provided for in a negotiable instrument, and for this reason is generally spoken of as illegal. But the processes involved in compound interest computations are interwoven with many different accounting and financial computations.

Salient Features of Compound Interest.—

1. Interest is computed upon a periodically increasing investment.
2. For each period the growth in the investment is proportional to the amount of the principal invested at the beginning of that period.

Example. Find the compound amount on $1,500 for 3 years at 6% per annum, compounded semiannually.

Investment	$1,500.00
Interest 6 months, $1,500 at 3%	45 00
Amount at end of first 6 months	1,545.00
Interest 6 months, $1,545 at 3%	46 35
Amount at end of second 6 months	1,591.35
Interest 6 months, $1,591.35 at 3%	47.74
Amount at end of third 6 months	1,639.09
Interest 6 months, $1,639 09 at 3%	49 17
Amount at end of fourth 6 months	1,688.26
Interest 6 months, $1,688 26 at 3%	50.65
Amount at end of fifth 6 months	1,738 91
Interest 6 months, $1,738 91 at 3%	52.17
Compound amount at end of 3 years	$1,791.08
Compound amount at end of 3 years	$1,791 08
Amount at beginning	1,500.00
Compound interest	$ 291.08

If the principal amount is reduced to unity, say $1, the above statement can be restated as follows:

Investment	$1 00
Interest 6 months, $1 at 3% or	03
Amount at end of first 6 months	1.03
Interest 6 months, $1.03 at 3%	.0309
Amount at end of second 6 months	1 0609
Interest 6 months, $1.0609 at 3%	.031827
Amount at end of third 6 months	1 092727
Interest 6 months, $1.092727 at 3%	.032782
Amount at end of fourth 6 months	1 125509
Interest 6 months, $1.125509 at 3%	033765
Amount at end of fifth 6 months	1 159274
Interest 6 months, $1.159274 at 3%	.034778
Compound amount at end of 3 years	$1.194052

It is obvious therefore that if we represent the rate of interest per period by i, the statement immediately above may be recast as follows:

Compound amount at end of	first	6	months	$1.03	$= (1 + i)$
" " " "	" second	6	"	1.0609	$= (1 + i)^2$
" " " "	" third	6	"	1.092727	$= (1 + i)^3$
" " " "	" fourth	6	"	1.125509	$= (1 + i)^4$
" " " "	" fifth	6	"	1.159274	$= (1 + i)^5$
" " " "	" sixth	6	"	1.194052	$= (1 + i)^6$

From the table on page 141 on the line corresponding to the sixth period in the 3% column, we find the value 1.19405230 which is the same as that derived above except for the fact that in the latter case the last two figures were dropped.

General Formula for Compound Interest.—To make this apply to any number of periods, the general formula for the compound amount becomes—

$a = (1 + i)^n$, where n is the number of periods, and i is the interest rate per period expressed as a decimal.

This problem can, of course, be solved arithmetically; but when n is a large number recourse must be had to logarithms. However, tables giving the compound amount for any number of periods up to 100 and at different interest rates are readily obtainable. Tables on pages 140-141 give the value of 1 compounded at various rates periodically from one period to 50, and from 50 to 100 at intervals of 5.

Compound

Amount $= (1 + i)^n$

Periods	1%	1¼%	1½%	1¾%	2%	2¼%	2½%
0	1	1	1	1	1	1.	1
1	1 01	1 0125	1 015	1 0175	1 02	1 0225	1 025
2	1 0201	1 02515625	1 030225	1 03530625	1 0404	1 04550625	1 050625
3	1 030301	1 03797070	1 04567838	1 05342411	1 061208	1 06903014	1 07689063
4	1 04060401	1 05094534	1 06136355	1 07185903	1 08243216	1 09308332	1 10381289
5	1 05101005	1 06408215	1 07728400	1 09061656	1 10408080	1 11767769	1 13140821
6	1 06152015	1 07738318	1 09344326	1 10970235	1 12616242	1 14282544	1 15969342
7	1 07213535	1 09085047	1 10984491	1 12912215	1 14868567	1 16853901	1 18868575
8	1 08285671	1 10448610	1 12649259	1 14888178	1 17165938	1 19483114	1 21840290
9	1 09368527	1 11829218	1 14338998	1 16898721	1 19509257	1 22171484	1 24886297
10	1 10462213	1 13227083	1 16054083	1 18944449	1 21899442	1 24920343	1 28008454
11	1 11566835	1 14642422	1 17794894	1 21025977	1 24337431	1 27731050	1 31208666
12	1 12682503	1 16075452	1 19561817	1 23143931	1 26824179	1 30604999	1 34488882
13	1 13809328	1 17526395	1 21355244	1 25298950	1 29360663	1 33543611	1 37851104
14	1 14947421	1 18995475	1 23175573	1 27491682	1 31947876	1 36548343	1 41297382
15	1 16096896	1 20482918	1 25023207	1 29722786	1 34586834	1 39620680	1 44829817
16	1 17257864	1 21988955	1 26898555	1 31992935	1 37278571	1 42762146	1 48450562
17	1 18430443	1 23513817	1 28802033	1 34302811	1 40024142	1 45974294	1 52161826
18	1 19614748	1 25057739	1 30734064	1 36653111	1 42824625	1 49258716	1 55965872
19	1 20810895	1 26620961	1 32695075	1 39044540	1 45681117	1 52617037	1 59865019
20	1 22019004	1 28203723	1 34685501	1 41477820	1 48594740	1 56050920	1 63861644
21	1 23239194	1 29806270	1 36705783	1 43953681	1 51566634	1 59562066	1 67958185
22	1 24471586	1 31428848	1 38756370	1 46472871	1 54597967	1 63152212	1 72157140
23	1 25716302	1 33071709	1 40837715	1 49036146	1 57689926	1 66823137	1 76461068
24	1 26973465	1 34735105	1 42950281	1 51644279	1 60843725	1 70576658	1 80872595
25	1 28243200	1 36419294	1 45094535	1 54298054	1 64060599	1 74414632	1 85394410
26	1 29525631	1 38124535	1 47270953	1 56998269	1 67341811	1 78338962	1 90029270
27	1 30820888	1 39851092	1 49480018	1 59745739	1 70688648	1 82351588	1 94780002
28	1 32129097	1 41599230	1 51722218	1 62541290	1 74102421	1 86454499	1 99649502
29	1 33450388	1 43369221	1 53998051	1 65385762	1 77584469	1 90649725	2 04640739
30	1 34784892	1 45161336	1 56308022	1 68280013	1 81136158	1 94939344	2 09756758
31	1 36132740	1 46975853	1 58652642	1 71224913	1 84758882	1 99325479	2 15000677
32	1 37494068	1 48813051	1 61032432	1 74221349	1 88454059	2 03810303	2 20375694
33	1 38869009	1 50673214	1 63447918	1 77270223	1 92223140	2 08396034	2 25885086
34	1 40257699	1 52556629	1 65899637	1 80372452	1 96067603	2 13084945	2 31532213
35	1 41660276	1 54463587	1 68388132	1 83528970	1 99988955	2 17879356	2 37320519
36	1 43076878	1 56394382	1 70913954	1 86740727	2 03988734	2 22781642	2 43253532
37	1 44507647	1 58349312	1 73477663	1 90008689	2 08068509	2 27794229	2 49334870
38	1 45952724	1 60328678	1 76079828	1 93333841	2 12229879	2 32919599	2 55568242
39	1 47412251	1 62332787	1 78721025	1 96717184	2 16474477	2 38160290	2 61957448
40	1 48886373	1 64361946	1 81401841	2 00159734	2 20803966	2 43518897	2 68506384
41	1 50375237	1 66416471	1 84122868	2 03662530	2 25220046	2 48998072	2 75219043
42	1 51878989	1 68496677	1 86884712	2 07226624	2 29724447	2 54600528	2 82099520
43	1 53397779	1 70602885	1 89687982	2 10853090	2 34318936	2 60329040	2 89152008
44	1 54931757	1.72735421	1 92533302	2 14543019	2 39005314	2 66186444	2.96380808
45	1 56481075	1 74894614	1 95421301	2 18297522	2 43785421	2 72175639	3 03790328
46	1 58045885	1 77080797	1 98352621	2 22117728	2.48661129	2 78299590	3 11385086
47	1 59626344	1 79294306	2 01327910	2 26004789	2 53634351	2 84561331	3 19169713
48	1 61222608	1 81535485	2 04347829	2 29959872	2 58707039	2.90963961	3 27148956
49	1 62834834	1 83804679	2 07413046	2 33984170	2 63881179	2 97510650	3 35327680
50	1 64463182	1 86102237	2 10524242	2 38078893	2 69158803	3 04204640	3 43710872
55	1 72852457	1 98028070	2.26794398	2 59652785	2 97173067	3.40002740	3 88877303
60	1 81669670	2 10718135	2 44321978	2 83181628	3 28103079	3 80013479	4 39978975
65	1 90936649	2 24221407	2 63204158	3 08842574	3 62252311	4 24732588	4 97795826
70	2 00676337	2 38589997	2 83545629	3 36828827	3 99955822	4 74714140	5 63210286
75	2 10912847	2 53879358	3 05459171	3 67351098	4 41583546	5 30577405	6 37220743
80	2 21671522	2 70148494	3 29066279	4 00639192	4 87543916	5 93014530	7 20956782
85	2 32978997	2 87460191	3 54497838	4 36943740	5 38287878	6 62799112	8 15696424
90	2 44863267	3 05881260	3 81894851	4 76538080	5 94313313	7 40795782	9 22885633
95	2 57353755	3 25482789	4 11409214	5 19720324	6 56169920	8.27970921	10 44160385
100	2 70481383	3.46340427	4 43204565	5 66815594	7 24464612	9.25404630	11.81371635

i = the rate of interest on 1 for one period

Interest

Amount $= (1 + i)^n$

Periods	2¾%	3%	3½%	4%	4½%	5%	6%
0	1.	1.	1	1	1	1	1
1	1.0275	1 03	1 035	1 04	1 045	1 05	1 06
2	1 05575625	1 0609	1 071225	1 0816	1 092025	1 1025	1 1236
3	1 08478955	1 092727	1 10871788	1 124864	1 14116613	1 157625	1 191016
4	1 11462126	1 12550881	1 14752300	1 16985856	1 19251860	1 21550625	1 26247696
5	1 14527334	1 15927407	1 18768631	1 21665290	1 24618194	1 27628156	1 33822558
6	1 17676836	1 19405230	1 22925533	1 26531902	1 30226012	1 34009564	1 41851911
7	1 20912949	1 22987387	1 27227926	1 31593178	1 36086183	1 40710042	1 50363026
8	1 24238055	1 26677008	1 31680904	1 36856905	1 42210061	1 47745544	1 59384807
9	1 27654602	1 30477318	1 36289735	1 42331181	1 48609514	1 55132822	1 68947896
10	1 31165103	1 34391638	1 41059876	1 48024428	1 55296942	1 62889463	1.79084770
11	1 34772144	1 38423387	1.45996972	1 53945406	1 62285305	1 71033936	1 89829856
12	1 38478378	1 42576089	1 51106866	1 60103222	1 69588143	1 79585633	2 01219647
13	1 42286533	1 46853371	1 56395606	1 66507351	1 77219610	1 88564914	2 13292826
14	1 46199413	1 51258972	1 61869452	1 73167645	1 85194492	1 97993160	2 26090396
15	1 50219896	1 55796742	1 67534883	1 80094351	1 93528244	2 07892818	2 39655819
16	1 54350944	1 60470644	1 73398604	1 87298125	2 02237015	2 18287459	2 54035168
17	1 58595595	1 65284763	1 79467555	1 94790050	2 11337681	2 29201832	2 69277279
18	1 62956973	1 70243306	1 85748920	2 02581652	2 20847877	2 40661923	2 85433915
19	1 67438290	1 75350605	1 92250132	2 10684918	2 30786031	2 52695020	3 02559950
20	1 72042843	1 80611123	1 98978886	2 19112314	2 41171402	2 65329771	3 20713547
21	1 76774021	1 86029457	2 05943147	2 27876807	2 52024116	2 78596259	3 39956360
22	1 81635307	1 91610341	2.13151158	2 36991879	2 63365201	2 92526072	3 60353742
23	1 86630278	1 97358651	2 20611448	2 46471554	2 75216635	3 07152376	3 81974966
24	1 91762610	2 03279411	2.28332849	2 56330416	2 87601383	3 22509994	4 04893464
25	1 97036082	2 09377793	2 36324498	2 66583633	3 00543446	3 38635494	4 29187072
26	2 02454575	2 15659127	2 44595856	2 77246978	3 14067901	3 55567269	4 54938296
27	2 08022075	2 22128901	2 53156711	2 88336858	3 28200956	3 73345632	4 82234594
28	2 13742682	2 28792768	2 62017196	2 99870332	3 42969999	3 92012914	5 11168670
29	2 19620606	2 35656551	2 71187798	3 11865145	3 58403649	4 11613560	5 41838790
30	2 25660173	2 42726247	2 80679370	3 24339751	3 74531813	4 32194238	5 74349117
31	2 31865828	2 50008035	2 90503148	3 37313341	3 91385745	4 53803949	6 08810064
32	2 38242138	2 57508276	3 00670759	3 50805875	4 08998104	4 76494147	6 45338668
33	2 44793797	2 65233524	3 11194235	3 64838110	4 27403018	5 00318854	6 84058988
34	2 51525626	2 73190530	3 22086033	3 79431634	4 46636154	5 25334797	7 25102528
35	2 58442581	2 81386245	3 33359045	3 94608899	4 66734781	5 51601537	7 68608679
36	2 65549752	2 89827833	3 45026611	4 10393255	4 87737846	5 79181614	8 14725200
37	2 72852370	2 98522668	3 57102543	4 26808986	5 09686049	6 08140694	8 63608712
38	2 80355810	3 07478348	3 69601132	4 43881345	5 32621921	6 38547729	9 15425235
39	2 88065595	3 16702698	3 82537171	4 61636599	5 56589908	6 70475115	9 70350749
40	2 95987399	3 26203779	3 95925972	4 80102063	5 81636454	7 03998871	10 28571794
41	3 04127052	3 35989893	4 09783381	4 99306145	6 07810094	7 39198815	10 90286101
42	3.12490546	3 46069589	4 24125799	5 19278391	6 35161548	7 76158756	11 55703267
43	3 21084036	3 56451677	4 38970202	5 40049527	6 63743818	8 14966693	12 25045463
44	3 29913847	3 67145227	4 54334160	5 61651508	6 93612290	8 55715028	12 98548191
45	3 38986478	3 78159584	4 70235855	5 84117568	7 24824843	8 98500779	13 76461083
46	3 48308606	3 89504372	4 86694110	6 07482271	7 57441961	9 43425818	14 59048748
47	3 57887093	4 01189503	5 03728404	6 31781562	7 91526849	9 90597109	15 46591673
48	3 67728988	4 13225188	5 21358898	6 57052824	8 27145557	10 40126965	16 39387173
49	3 77841535	4 25621944	5 39606459	6 83334937	8 64367107	10 92133313	17 37750403
50	3 88232177	4 38390602	5.58492686	7 10668335	9 03263627	11 46739979	18 42015427
55	4 44631964	5 08214859	6 63314114	8 64636692	11 25630817	14 63563092	24 65032159
60	5 09225136	5 89160310	7 87809090	10 51962741	14 02740793	18 67918589	32 98769085
65	5 83201974	6 82998273	9 35670068	12 79873522	17 48070239	23 83990056	44 14497165
70	6 67925676	7 91782191	11 11282526	15 57161835	21 78413558	30 42642554	59 07593018
75	7 64957472	9 17892567	13 19855038	18 94525466	27 14699629	38 83268592	79 05692079
80	8 76085402	10 64089056	15 67573754	23 04979907	33 83009643	49.56144107	105 79599348
85	10 03357258	12 33570855	18 61785881	28 04360494	42 15845513	63.25435344	141 57890449
90	11 49118322	14 30046711	22 11217595	34 11933334	52 53710530	80 73036505	189 46451123
95	13 16054584	16 57816077	26 26232856	41 51138594	65 47079168	103 03467645	253 54625498
100	15 07242234	19 21863198	31 19140798	50 50494818	81 58851803	131 50125785	339 30208351

n = the number of periods

Compound

$$\text{Present worth} = \frac{1}{(1+i)^n}$$

Periods	1%	1¼%	1½%	1¾%	2%	2¼%	2½%
0	1.	1	1	1	1	1	1
1	0 99009901	0 98765432	0 98522167	0 98280098	0 98039216	0 97799511	0 97560976
2	0 98029605	0 97546106	0 97066175	0 96589777	0 96116878	0 95647444	0 95181440
3	0 97059015	0 96341833	0 95631699	0 94928528	0 94232233	0 93542732	0 92859941
4	0 96098034	0 95152428	0 94218423	0 93295851	0 92384543	0 91484335	0 90595064
5	0 95146569	0 93977706	0 92826033	0 91691254	0 90573081	0 89471232	0 88385429
6	0 94204524	0 92817488	0 91454219	0 90114254	0 88797138	0 87502427	0 86229687
7	0 93271805	0 91671593	0 90102679	0 88564378	0 87056018	0 85576946	0 84126524
8	0 92348322	0 90539845	0 88771112	0 87041157	0 85349037	0 83693835	0 82074657
9	0 91433982	0 89422069	0 87459224	0 85544135	0 83675527	0 81852161	0 80072836
10	0 90528695	0 88318093	0 86166723	0 84072860	0 82034830	0 80051013	0 78119840
11	0 89632372	0 87227746	0 84893323	0 82626889	0 80426304	0 78289499	0 76214478
12	0 88744923	0 86150860	0 83638742	0 81205788	0 78849318	0 76566748	0 74355589
13	0 87866260	0 85087269	0 82402702	0 79809128	0 77303253	0 74881905	0 72542038
14	0 86996297	0 84036809	0 81184928	0 78436490	0 75787502	0 73234137	0 70772720
15	0 86134947	0 82999318	0 79985150	0 77087459	0 74301473	0 71622628	0 69046556
16	0 85282126	0 81974635	0 78803104	0 75761631	0 72844581	0 70046580	0 67362493
17	0 84437749	0 80962602	0 77638526	0 74458605	0 71416256	0 68505212	0 65719506
18	0 83601731	0 79963064	0 76491159	0 73177990	0 70015937	0 66997763	0 64116591
19	0 82773992	0 78975866	0 75360747	0 71919401	0 68643076	0 65523484	0 62552772
20	0 81954447	0 78000855	0 74247042	0 70682458	0 67297133	0 64081647	0 61027094
21	0 81143017	0 77037881	0 73149795	0 69466789	0 65977582	0 62671538	0 59538629
22	0 80339621	0 76086796	0 72068763	0 68272028	0 64683904	0 61292457	0 58086467
23	0 79544179	0 75147453	0 71003708	0 67097817	0 63415592	0 59943724	0 56669724
24	0 78756613	0 74219707	0 69954392	0 65943800	0 62172149	0 58624668	0 55287535
25	0 77976844	0 73303414	0 68920583	0 64809632	0 60953087	0 57334639	0 53939059
26	0 77204796	0 72398434	0 67902052	0 63694970	0 59757928	0 56072997	0 52623472
27	0 76440392	0 71504626	0 66898574	0 62599479	0 58586204	0 54839117	0 51339973
28	0 75683557	0 70621853	0 65909925	0 61522829	0 57437455	0 53632388	0 50087778
29	0 74934215	0 69749978	0 64935887	0 60464697	0 56311231	0 52452213	0 48866125
30	0 74192292	0 68888867	0 63976243	0 59424764	0 55207089	0 51298008	0 47674269
31	0 73457715	0 68038387	0 63030781	0 58402716	0 54124597	0 50169201	0 46511481
32	0 72730411	0 67198407	0 62099292	0 57398247	0 53063330	0 49065233	0 45377055
33	0 72010307	0 66368797	0 61181568	0 56411053	0 52022873	0 47985558	0 44270298
34	0 71297334	0 65549429	0 60277407	0 55440839	0 51002817	0 46929641	0 43190534
35	0 70591420	0 64740177	0 59386608	0 54487311	0 50002761	0 45896960	0 42137107
36	0 69892495	0 63940916	0 58508974	0 53550183	0 49022315	0 44887002	0 41109372
37	0 69200490	0 63151522	0 57644309	0 52629172	0 48061093	0 43899268	0 40106705
38	0 68515337	0 62371873	0 56792423	0 51724002	0 47118719	0 42933270	0 39128492
39	0 67836967	0 61601850	0 55953126	0 50834400	0 46194822	0 41988528	0 38174139
40	0 67165314	0 60841334	0 55126232	0 49960098	0 45289042	0 41064575	0 37243062
41	0 66500311	0 60090206	0 54311559	0 49100834	0 44401021	0 40160954	0 36334695
42	0 65841892	0 59348352	0 53508925	0 48256348	0 43530413	0 39277216	0 35448483
43	0 65189992	0 58615656	0 52718153	0 47426386	0 42676875	0 38412925	0 34583886
44	0 64544546	0 57892006	0 51939067	0 46610699	0 41840074	0 37567653	0 33740376
45	0 63905492	0 57177290	0 51171494	0 45809040	0 41019680	0 36740981	0 32917440
46	0 63272764	0 56471397	0 50415265	0 45021170	0 40215373	0 35932500	0 32114576
47	0 62646301	0 55774219	0 49670212	0 44246850	0 39426836	0 35141809	0 31331294
48	0 62026041	0 55085649	0 48936170	0 43485848	0 38653761	0 34368518	0 30567116
49	0 61411921	0 54405579	0 48212975	0 42737934	0 37895844	0 33612242	0 29821576
50	0 60803882	0 53733905	0 47500468	0 42002883	0 37152788	0 32872608	0 29094221
55	0 57852808	0 50497892	0 44092800	0 38512970	0 33650425	0 29411528	0 25715052
60	0 55044962	0 47456760	0 40929597	0 35313025	0 30478227	0 26314856	0 22728359
65	0 52373392	0 44598775	0 37993321	0 32378956	0 27605069	0 23544226	0 20088557
70	0 49831486	0 41912905	0 35267692	0 29688670	0 25002761	0 21065309	0 17755358
75	0 47412949	0 39388787	0 32737599	0 27221914	0 22645771	0 18847391	0 15693149
80	0 45111794	0 37016679	0 30389015	0 24960114	0 20510973	0 16862993	0 13870457
85	0 42922324	0 34787426	0 28208917	0 22886242	0.18577420	0 15087528	0 12259463
90	0 40839119	0 32692425	0 26185218	0 20984682	0 16826142	0 13498997	0 10835579
95	0 38857020	0 30723591	0 24306699	0 19241118	0 15239955	0 12077719	0 09577073
100	0 36971121	0 28873326	0 22562944	0 17642422	0.13803297	0 10806084	0 08464737

Discount

$$\text{Present worth} = \frac{1}{(1+i)^n}$$

Periods	2¾%	3%	3½%	4%	4½%	5%	6%
0	1	1	1	1	1	1	1
1	0 97323601	0 97087379	0 96618357	0 96153846	0 95693780	0 95238095	0 94339623
2	0 94718833	0 94259591	0 93351070	0 92455621	0 91572995	0 90702948	0 88999644
3	0 92183779	0 91514166	0 90194271	0 88899636	0 87629660	0 86383760	0 83961928
4	0 89716573	0 88848705	0 87144223	0 85480419	0 83856134	0 82270247	0 79209366
5	0 87315400	0 86260878	0 84197317	0 82192711	0 80245105	0 78352617	0 74725817
6	0 84978491	0 83748426	0 81350064	0 79031453	0 76789574	0 74621540	0 70496054
7	0 82704128	0 81309151	0 78599096	0 75991781	0 73482846	0 71068133	0 66505711
8	0 80490635	0 78940923	0 75941156	0 73069021	0 70318513	0 67683936	0 62741237
9	0 78336385	0 76641673	0 73373097	0 70258674	0 67290443	0 64460892	0 59189846
10	0 76239791	0 74409391	0 70891881	0 67556417	0 64392768	0 61391325	0 55839478
11	0 74199310	0 72242128	0 68494571	0 64958093	0 61619874	0 58467929	0 52678753
12	0 72213440	0 70137988	0 66178330	0 62459705	0 58966386	0 55683742	0 49696936
13	0 70280720	0 68095134	0 63940415	0 60057409	0 56427164	0 53032135	0 46883902
14	0 68399728	0 66111781	0 61778179	0 57747508	0 53997286	0 50506795	0 44230096
15	0 66569078	0 64186195	0 59689062	0 55526450	0 51672044	0 48101710	0 41726506
16	0 64787424	0 62316694	0 57670591	0 53390818	0 49446932	0 45811152	0 39364628
17	0 63053454	0 60501645	0 55720378	0 51337325	0 47317639	0 43629669	0 37136442
18	0 61365892	0 58739461	0 53836114	0 49362812	0 45280037	0 41552065	0 35034379
19	0.59723496	0 57028603	0 52015569	0 47464242	0 43330179	0 39573396	0 33051301
20	0 58125057	0 55367575	0 50256588	0 45638695	0 41464286	0 37688948	0 31180473
21	0 56569398	0 53754928	0 48557090	0 43883360	0 39678743	0 35894236	0 29415540
22	0 55055375	0 52189250	0 46915063	0 42195539	0 37970089	0 34184987	0 27750510
23	0 53581874	0 50669175	0 45328563	0 40572633	0 36335013	0 32557131	0 26179726
24	0 52147809	0 49193374	0 43795713	0 39012147	0 34770347	0 31006791	0 24697855
25	0 50752126	0 47760557	0 42314699	0 37511680	0 33273060	0 29530277	0 23299863
26	0 49393796	0 46369473	0 40883767	0 36068923	0 31840248	0 28124073	0 21981003
27	0 48071821	0 45018906	0 39501224	0 34681657	0 30469137	0 26784832	0 20736795
28	0 46785227	0 43707675	0 38165434	0 33347747	0 29157069	0 25509364	0 19563014
29	0 45533068	0 42434636	0 36874815	0 32065141	0 27901502	0 24294632	0 18455674
30	0 44314421	0 41198676	0 35627841	0 30831867	0 26700002	0 23137745	0 17411013
31	0 43128391	0 39998715	0 34423035	0 29646026	0 25550241	0 22035947	0 16425484
32	0 41974103	0 38833703	0 33258971	0 28505794	0 24449991	0 20986617	0 15495740
33	0 40850708	0 37702625	0 32134271	0 27409417	0 23397121	0 19987254	0 14618622
34	0 39757380	0 36604490	0 31047605	0 26355209	0 22389589	0 19035480	0 13791153
35	0 38693314	0 35538340	0 29997686	0 25341547	0 21425444	0 18129029	0 13010522
36	0 37657727	0 34503243	0 28983272	0 24366872	0 20502817	0 17265741	0 12274077
37	0 36649856	0 33498294	0 28003161	0 23429685	0 19619921	0 16443563	0 11579318
38	0 35668959	0 32522615	0 27056194	0 22528543	0 18775044	0 15660536	0 10923885
39	0 34714316	0 31575355	0 26141250	0 21662061	0 17966549	0 14914797	0 10305552
40	0 33785222	0 30655684	0 25257247	0 20828904	0 17192870	0 14204568	0 09722219
41	0 32880995	0 29762800	0 24403137	0 20027793	0 16452507	0 13528160	0 09171905
42	0 32000968	0 28895922	0 23577910	0 19257493	0 15744026	0 12883962	0 08652740
43	0 31144495	0 28054294	0 22780590	0 18516820	0 15066054	0 12270440	0 08162962
44	0 30310944	0 27237178	0 22010231	0 17804635	0 14417276	0 11686133	0 07700908
45	0 29499702	0 26443862	0 21265924	0 17119841	0 13796437	0 11129651	0 07265007
46	0 28710172	0 25673653	0 20546787	0 16461386	0 13202332	0 10599668	0 06853781
47	0 27941773	0 24925876	0 19851968	0 15828256	0 12633810	0 10094921	0 06465831
48	0 27193940	0 24199880	0 19180645	0 15219476	0 12089771	0 09614211	0 06099840
49	0 26466122	0 23495029	0 18532024	0 14634112	0 11569158	0 09156391	0 05754566
50	0 25757783	0 22810708	0 17905337	0 14071262	0 11070965	0 08720373	0 05428836
55	0 22490511	0 19676717	0 15075814	0 11565551	0 08883907	0 06832640	0 04056742
60	0 19637679	0 16973309	0 12693431	0 09506040	0 07128901	0 05353552	0 03031434
65	0 17146718	0 14641325	0 10687528	0 07813272	0 05720594	0 04194648	0 02265264
70	0 14971726	0 12629736	0 08998612	0 06421940	0 04590497	0 03286617	0 01692737
75	0 13072622	0 10894521	0 07576590	0 05278367	0 03683649	0 02575150	0 01264911
80	0 11414412	0 09397710	0 06379285	0 04338433	0 02955948	0 02017698	0 00945215
85	0 09966540	0 08106547	0 05371187	0 03565875	0 02372003	0 01580919	0 00706320
90	0 08702324	0 06992779	0 04522395	0 02930890	0 01903417	0 01238691	0 00527803
95	0 07598469	0 06032032	0 03807735	0 02408978	0 01527399	0 00970547	0 00394405
100	0 06634634	0 05203284	0 03206011	0 01980004	0 01225663	0 00760449	0 00294723

PRESENT VALUE OF A SUM AND TABLES

Definition.—The value of a sum of money due at a future time is called the present worth or present value of that sum. It is the reciprocal of the compound amount, and may also be defined as that sum of money, which, when placed at compound interest for the full number of periods involved, will amount to that given sum.

Example. $1,500 at compound interest for 6 periods at 3% per period will amount to $1,791 08. The present worth of $1,791.08 due 6 periods hence at 3% per period compounded will be $1,500.

The formula corresponding to this would be:

$$P.\,V. = \frac{1}{(1+i)^n} \text{ or } \frac{1}{a}$$

$P.\,V.$ = present value
i = simple interest in hundredths
n = the number of periods

Compound Discount.—The difference between the present worth of the future sum and that future sum is called the compound discount and is usually designated by the letter D.

Example. Find the present worth and compound discount of $2,100 with interest at 4½% per annum, compounded semiannually for 6 years.

The number of periods is 12 and the interest per period is 2¼%. From the table on page 142, line 12, column of 2¼%, the present worth of $1 is found to be .76566748. Therefore the present value ($P.\,V.$) of $2,100 = .76566748 × 2,100 = $1,607.90, and the compound discount is $2,100 — $1,607.90, or $492.10.

ANNUITIES AND TABLES

Annuity.—An annuity is the payment or receipt of a fixed sum of money at uniform intervals of time. An example of an annuity is rent on the use of property.

Payments of annuities are often called rents.

ORDINARY ANNUITY.—An ordinary annuity is a series of payments each of which is made at the end of a period of time.

ANNUITY DUE.—An annuity due is one in which the payment is made or received at the beginning of a period. A life insurance premium paid in advance is an example of an annuity due.

DEFERRED ANNUITY.—A deferred annuity is one in which payment is to be made or received after a number of periods have elapsed.

Amount of Annuity.—The total of all annuity payments made or received is the amount of annuity.

Annuity in Perpetuity.—An annuity in which the payments continue indefinitely is a perpetuity. An example of this type is to be found in the payment made from endowment funds.

Contingent Annuity.—A contingent annuity is one in which the begining or the termination of a series of payments is contingent upon the happening of a certain event. All other annuities are called annuities certain.

Amount of an Ordinary Annuity.—The formula for determining the amount of an ordinary annuity is as follows:

$$A = \frac{(1+i)^n - 1}{i} = \frac{a-1}{i}$$

Where $A =$ amount of annuity
$a - 1 =$ compound interest for the number of periods (n)
$n =$ the number of periods
$i =$ simple interest per period

This formula is quite readily remembered when stated in the following way:

The amount of annuity is the compound interest accumulated during the time the annuity runs, divided by the simple interest for one period. Tables on pages 146-147 will simplify the computations which are ordinarily met with in business.

Example. To find the amount of an annuity of $2,000 received semi-annually for 10 years when invested at 4% per annum:

In the amount of annuity table for 20 periods in the 2% column the factor is found to be 24.2973698.

Multiply this factor by 2,000,

$$\$2{,}000 \times 24.2973698 = \$48{,}594.74$$

The Amount of an Annuity Due.—In the case of an annuity due, the payments are made at the beginning rather than at the close of the period in which case there is one more interest payment than in the previous illustration.

Thus the amount of an annuity due, using the preceding example, will mean adding to the amount of $48,594.74 interest on that sum at 2%, or $971.89

$$\text{Amount of annuity due} = \$48{,}594.74 + \$971\ 89 = \$49{,}566.63$$

Amount of

Amount of annuity $= \dfrac{(1+i)^n - 1}{i}$

Periods	1%	1¼%	1½%	1¾%	2%	2¼%	2½%
1	1	1	1.	1.	1	1	1.
2	2 01	2 0125	2 015	2 0175	2 02	2 0225	2 025
3	3 0301	3 03765625	3 045225	3 05280625	3 0604	3 06800625	3 075625
4	4 060401	4 07562695	4 09090338	4 10623036	4 121608	4 13703639	4 15251563
5	5 10100501	5 12657229	5 15226693	5 17808939	5 20404016	5 23011971	5 25632852
6	6 15201506	6 19065444	6 22955093	6 26870596	6 30812096	6 34779740	6 38773673
7	7 21353521	7 26803762	7 32299419	7 37840831	7 43428338	7 49062284	7 54743015
8	8 28567056	8 35888809	8 43283911	8 50753045	8 58296905	8 65916186	8 73611590
9	9 36852727	9 46337420	9 55933169	9 65641224	9 75462843	9 85399300	9 95451880
10	10 46221254	10 58166637	10 70272167	10 82539945	10 94972100	11 07570784	11 20338177
11	11 56683467	11 71393720	11 86326249	12 01484394	12 16871542	12 32491127	12 48346631
12	12 68250301	12 86036142	13 04121143	13 22510371	13 41208973	13 60222177	13 79555297
13	13 80932804	14 02111594	14 23682960	14 45654303	14 68033152	14 90827176	15 14044179
14	14 94742132	15 19637988	15 45038205	15 70953253	15 97393815	16 24370788	16 51895284
15	16 09689554	16 38633463	16 68213778	16 98444935	17 29341692	17 60919130	17 93192666
16	17 25786449	17 59116382	17 93236984	18 28167721	18 63928525	19 00539811	19 38022483
17	18 43044314	18 81105336	19 20135539	19 60160656	20 01207096	20 43301957	20 86473045
18	19 61474757	20 04619153	20 48937572	20 94463468	21 41231238	21 89276251	22 38634871
19	20 81089504	21 29676893	21 79671636	22 31116578	22 84055863	23 38534966	23 94600743
20	22 01900399	22 56297854	23.12366710	23 70161119	24 29736980	24 91152003	25 54465761
21	23 23919403	23 84501577	24 47052211	25 11638938	25 78331719	26 47202923	27 18327405
22	24 47158598	25 14307847	25 83757994	26 55592620	27 29898354	28 06764989	28 86285590
23	25 71630183	26 45736695	27 22514364	28 02065490	28 84496321	29 69917201	30 58442730
24	26 97346485	27 78808403	28 63352080	29 51101637	30 42186247	31 36740338	32 34903798
25	28 24319950	29 13543508	30 06302361	31 02745915	32 03029972	33 07316996	34 15776393
26	29 52563150	30 49962802	31 51396896	32 57043969	33 67090572	34 81731628	36 01170803
27	30 82088781	31 88087337	32 98667850	34 14042238	35 34432383	36 60070590	37 91200073
28	32 12909669	33 27938429	34.48147867	35 73787977	37 05121031	38 42422178	39 85980075
29	33 45038766	34 69537659	35 99870085	37 36329267	38 79223451	40 28876677	41 85629577
30	34 78489153	36 12906880	37.53868137	39 01715029	40 56807921	42 19526402	43 90270316
31	36 13274045	37 58068216	39 10176159	40 69995042	42 37944079	44 14465746	46 00027074
32	37 49406785	39 05044069	40 68828801	42 41219955	44 22702961	46 13791226	48 15027751
33	38 86900853	40 53857120	42 29861233	44 15441305	46 11157020	48 17601528	50 35403445
34	40 25769862	42 04530334	43 93309152	45 92711527	48 03380160	50 25997563	52 61288531
35	41 66027560	43 57086963	45 59208789	47 73083979	49 99447763	52 39082508	54 92820744
36	43 07687836	45 11550550	47 27596921	49 56612949	51 99436719	54 56961864	57 30141263
37	44 50764714	46 67944932	48 98510874	51 43353675	54 03425453	56 79743506	59 73394794
38	45 95272361	48 26294243	50 71988538	53 33362365	56 11493962	59 07537735	62 22729664
39	47 41225085	49 86622921	52 48068366	55 26696206	58 23723841	61 40457334	64 78297906
40	48 88637336	51 48955708	54 26789391	57 23413390	60 40198318	63 78617624	67 40255354
41	50 37523709	53 13317654	56 08191232	59 23573124	62 61002284	66 22136521	70 08761737
42	51 87898946	54 79734125	57 92314100	61 27235654	64 86222330	68 71134592	72 83980781
43	53 39777936	56 48230801	59 79198812	63 34462278	67 15946777	71 25735121	75 66080300
44	54 93175715	58 18833687	61 68886794	65 45315367	69 50265712	73 86064161	78 55232308
45	56 48107472	59 91569108	63 61420096	67 59858386	71 89271027	76 52250605	81 51613116
46	58 04588547	61 66463721	65 56841398	69 78155908	74 33056447	79 24426243	84 55403443
47	59 62634432	63 43544518	67 55194018	72 00273637	76 81717576	82 02725834	87 66788530
48	61 22260777	65 22838824	69 56521929	74 26278425	79 35351927	84 87287165	90 85958243
49	62 83483385	67 04374310	71 60869758	76 56238298	81 94058966	87 78251126	94 13107199
50	64 46318218	68 88178989	73 68282804	78 90222468	84 57940145	90 75761776	97 48434879
55	72 85245735	78 42245562	84 52959893	91 23016259	98 58653365	106 66788460	115 55092136
60	81 66966986	88 57450776	96 21465171	104 67521588	114 05153942	124 45043493	135 99158995
65	90 93664882	99 37712526	108 80277215	119 33861370	131 12615541	144 32559477	159 11833027
70	100 67633684	110 87199776	122 36375295	135 33075826	149 97791114	166 53961758	185 28411421

An Annuity

$$\text{Amount of annuity} = \frac{(1+i)^n - 1}{i}$$

Periods	2¾%	3%	3½%	4%	4½%	5%	6%
1	1	1	1	1	1	1	1
2	2 0275	2 03	2 035	2 04	2 045	2 05	2 06
3	3 08325625	3 0909	3 106225	3 1216	3 137025	3 1525	3 1836
4	4 16804580	4 183627	4 21494288	4 246464	4 27819113	4 310125	4 374616
5	5 28266706	5 30913581	5 36246588	5 41632256	5 47070973	5 52563125	5 63709296
6	6 42794040	6 46840988	6 55015218	6 63297546	6 71689166	6 80191281	6 97531854
7	7 60470876	7 66246218	7 77940751	7 89829448	8 01915179	8 14200845	8 39383765
8	8 81383825	8 89233605	9 05168677	9 21422626	9 38001362	9 54910888	9 89746791
9	10 05621880	10 15910613	10 36849581	10 58279531	10 80211423	11 02656432	11 49131598
10	11 33276482	11 46387931	11 73139316	12 00610712	12 28820937	12 57789254	13 18079494
11	12 64441585	12 80779569	13 14199192	13 48635141	13 84117879	14 20678716	14 97164264
12	13 99213729	14 19202956	14 60196164	15 02580546	15 46403184	15 91712652	16 86994120
13	15 37692107	15 61779045	16 11303030	16 62683768	17 15991327	17 71298285	18 88213767
14	16 79978639	17 08632416	17 67698636	18 29191119	18 93210937	19 59863199	21 01506593
15	18 26178052	18 59891389	19 29568088	20 02358764	20 78405429	21 57856359	23 27596988
16	19 76397948	20 15688130	20 97102971	21 82453114	22 71933673	23 65749177	25 67252808
17	21 30748892	21 76158774	22 70501575	23 69751239	24 74170689	25 84036636	28 21287976
18	22 89344487	23 41443537	24 49969130	25 64541288	26 85508370	28 13238467	30 90565255
19	24 52301460	25 11686844	26 35718050	27 67122940	29 06356246	30 53900391	33 75999170
20	26 19739750	26 87037449	28 27968181	29 77807858	31 37142277	33 06595410	36.78559120
21	27 91782593	28 67648572	30 26947068	31 96920172	33 78313680	35 71925181	39 99272668
22	29 68556615	30 53678030	32 32890215	34 24796979	36 30337795	38 50521440	43 39229028
23	31 50191921	32 45288370	34 46041373	36 61788858	38 93702996	41 43047512	46 99582769
24	33 36822199	34 42647022	36 66652821	39 08260412	41 68919631	44 50199887	50 81557735
25	35 28584810	36 45926432	38 94985669	41 64590829	44 56521015	47 72709882	54 86451200
26	37 25620892	38 55304225	41 31310168	44 31174462	47 57064460	51 11345376	59 15638272
27	39 28075467	40 70963352	43 75906024	47 08421440	50 71132361	54 66912645	63 70576568
28	41 36097542	42 93092252	46 29062734	49 96758298	53 99333317	58 40258277	68 52811162
29	43 49840224	45 21885020	48 91079930	52 96628630	57 42303316	62 32271191	73 63979832
30	45 69460830	47 57541571	51 62267728	56 08493775	61 00706966	66 43884750	79 05818622
31	47 95121003	50 00267818	54 42947098	59 32833526	64 75238779	70 76078988	84 80167739
32	50 26986831	52 50275852	57 33450247	62 70146867	68 66624524	75 29882937	90 88977803
33	52 65228969	55 07784128	60 34121005	66 20952742	72 75622628	80 06377084	97 34316471
34	55 10022765	57 73017652	63 45315240	69 85790851	77 03025646	85 06695938	104.18375460
35	57 61548391	60 46208181	66 67401274	73 65222486	81 49661800	90 32030735	111 43477987
36	60 19990972	63 27594427	70 00760318	77 59831385	86 16396581	95 83632272	119 12086666
37	62 85540724	66 17422259	73 45786930	81 70224640	91 04134427	101 62813886	127 26811866
38	65 58393094	69 15944927	77 02889472	85 97033626	96 13820476	107 70954580	135 90420578
39	68 38748904	72 23423275	80 72490604	90 40914971	101 46442398	114 09502309	145 05845813
40	71 26814499	75 40125973	84 55027775	95 02551570	107 03032306	120 79977424	154 76196562
41	74 22801898	78 66329753	88 50953747	99 82653633	112 84668760	127 83976295	165 04768356
42	77 26928950	82 02319645	92 60737128	104 81959778	118 92478854	135 23175110	175 95054457
43	80 39419496	85 48389234	96 84862928	110 01238169	125 27640402	142 99333866	187 50757724
44	83 60503532	89 04840911	101 23833130	115 41287696	131 91384220	151 14300559	199 75803188
45	86 90417379	92 71986139	105 78167290	121 02939204	138 84996510	159 70015587	212 74351379
46	90 29403857	96 50145723	110 48403145	126 87056772	146 09821353	168 68516366	226 50812462
47	93 77712463	100 39650095	115 35097255	132 94539043	153 67263314	178 11942185	241 09861210
48	97 35599556	104 40839598	120 38825659	139 26320604	161 58790163	188 02539294	256 56452882
49	101 03328544	108 54064785	125 60184557	145 83373429	169 85935720	198 42666259	272 95840055
50	104 81170079	112 79686729	130 99791016	152 66708366	178 50302828	209 34799572	290 33590458
55	125 32071411	136 07161972	160 94688984	191 15917299	227 91795938	272 71261833	394 17202657
60	148 80914038	163 05343680	196 51688288	237 99068520	289 49795398	353 58371788	533 12818089
65	175 70980889	194 33275782	238 76287650	294 96838045	366 23783096	456 79801118	719 08286076
70	206 51842746	230 59406374	288 93786459	364 29045876	461 86967955	588 52851071	967 93216965

Present Worth

$$\text{Present worth of annuity} = \frac{1 - \dfrac{1}{(1+i)^n}}{i}$$

Periods	1%	1¼%	1½%	1¾%	2%	2¼%	2½%
1	0 99009901	0 98765432	0 98522167	0 98280098	0 98039216	0 97799511	0 97560976
2	1 97039506	1 96311538	1 95588342	1 94869875	1 94156094	1 93446955	1 92742415
3	2 94098521	2 92653371	2 91220042	2 89798403	2 88388327	2 86989687	2 85602356
4	3 90196555	3 87805798	3 85438465	3 83094254	3 80772870	3 78474021	3 76197421
5	4 85343124	4 81783504	4 78264497	4 74785508	4 71345951	4 67945253	4 64582850
6	5 79547647	5 74600992	5 69718717	5 64899762	5 60143089	5 55447680	5 50812536
7	6 72819453	6 66272585	6 59821396	6 53464139	6 47199107	6 41024626	6 34939060
8	7 65167775	7 56812429	7 48592508	7 40505297	7 32548144	7 24718461	7 17013717
9	8 56601758	8 46234498	8 36051732	8 26049432	8 16223671	8 06570622	7 97086553
10	9 47130453	9 34552591	9 22218455	9 10122291	8 98258501	8 86621635	8 75206393
11	10 36762825	10 21780337	10 07111779	9 92749181	9 78684805	9 64911134	9 51420871
12	11 25507747	11 07931197	10 90750521	10 73954969	10 57534122	10 41477882	10 25776460
13	12.13374007	11 93018466	11 73153222	11 53764097	11 34837375	11 16359787	10 98318497
14	13 00370304	12 77055275	12 54338150	12 32200587	12 10624877	11 89593924	11 69091217
15	13 86505252	13 60054592	13 34323301	13 09288046	12 84926350	12 61216551	12 38137773
16	14 71787378	14 42029227	14 131 26405	13 85049677	13 57770931	13 31263131	13 05500266
17	15 56225127	15 22991829	14 907 64931	14 59508282	14 29187188	13 99768343	13 71219772
18	16 39826858	16 02954893	15 6725 6089	15 32686272	14 99203125	14 66766106	14 35336363
19	17 22600850	16 81930759	16 4261 6837	16 04605673	15 67846201	15 32289590	14 97889134
20	18.04555297	17 59931613	17 1686 3879	16 75288130	16 35143334	15 96731237	15 58916229
21	18 85698313	18 36969495	17 90 013673	17 44754919	17 01120916	16 59042775	16 18454857
22	19 66037934	19 13056291	18 62 082437	18 13026948	17 65804820	17 20335232	16 76541324
23	20 45582113	19 88203744	19 33 086145	18 80124764	18 29220412	17 80278955	17 33211048
24	21 24338726	20 62423451	20 03 040537	19 46068565	18 91392560	18 38903624	17 88498583
25	22 02315570	21 35726865	20 71961120	20 10878196	19 52345647	18 96238263	18 42437642
26	22 79520366	22 08125299	21 39863172	20 74573166	20 12103576	19 52311260	18 95061114
27	23 55960759	22 79629925	22 06761746	21 37172644	20 70689780	20 07150376	19 46401087
28	24 31644316	23 50251778	22 72671671	21 98695474	21 28127236	20 60782764	19 96488866
29	25 06578530	24 20001756	23 37607558	22 59160171	21 84438466	21 13234977	20 45354991
30	25 80770822	24 88890623	24 01583801	23 18584934	22 39645555	21 64532985	20 93029259
31	26 54228537	25 56929010	24 64614582	23 76987650	22 93770152	22 14702186	21 39540741
32	27 26958947	26 24127418	25 26713874	24 34385897	23 46833482	22 63767419	21 84917796
33	27 98969255	26 90496215	25 87895442	24 90796951	23 98856355	23 11752977	22 29188094
34	28 70266589	27 56045644	26 48172849	25 46237789	24 49859172	23 58682618	22 72378628
35	29 40858009	28 20785822	27 07559458	26 00725100	24 99861933	24 04579577	23 14515734
36	30 10750504	28 84726737	27 66068431	26 54275283	25 48884248	24 49466579	23 55625107
37	30 79950994	29 47878259	28 23712740	27 06904455	25 96945341	24 93365848	23 95731812
38	31 48466330	30 10250133	28 80505163	27 58628457	26 44064060	25 36299118	24 34860304
39	32 16303298	30 71851983	29 36458288	28 09462857	26 90258883	25 78287646	24 73034443
40	32.83468611	31 32693316	29 91584520	28 59422955	27 35547924	26 19352221	25 10277505
41	33 49968922	31 92783522	30 45896079	29 08523789	27 79948945	26 59513174	25 46612200
42	34 15810814	32 52131874	30 99405004	29 56780136	28 23479358	26 98790390	25 82060683
43	34 81000806	33 10747530	31 52123157	30 04206522	28 66156233	27 37203316	26 16644569
44	35 45545352	33 68639536	32 04062223	30 50817221	29 07996307	27 74770969	26 50384945
45	36 09450844	34 25816825	32 55233718	30 96626261	29 49015987	28 11511950	26 83302386
46	36 72723608	34 82288222	33 05648983	31 41647431	29 89231360	28 47444450	27 15416962
47	37 35369909	35 38062442	33 55319195	31 85894281	30 28658196	28 82586259	27 46748255
48	37 97395949	35 93148091	34 04255365	32 29380129	30 67311957	29 16954777	27 77315371
49	38 58807871	36 47553670	34 52468339	32 72118063	31 05207801	29 50567019	28 07136947
50	39 19611753	37 01287574	34.99968807	33 14120946	31 42360589	29 83439627	28 36231168
55	42 14719216	39 60168667	37 27146681	35 13544550	33 17478752	31 37265438	29 71397928
60	44 95503841	42 03459179	39.38026889	36 96398552	34 76088668	32 74895285	30 90865649
65	47 62660777	44 32098022	41 33778618	38 64059678	36 19746555	33 98034405	31 96457705
70	50 16851435	46 46967562	43 15487183	40 17790267	37 49861929	35 08208492	32 89785698
75	52 58705124	48 48897027	44 84160034	41 58747771	38 67711433	36 06782605	33 72274044
80	54 88820611	50 38665706	46 40732349	42 87993474	39 74451359	36 94978079	34 45181722
85	57 07767600	52 17005958	47 86072218	44 06500479	40 71128999	37 73887655	35 09621486
90	59 16088148	53 84606035	49 20985452	45 15161037	41 58692916	38 44489025	35 66576848
95	61 14298002	55 42112744	50 46220054	46 14793265	42 38002254	39 07656940	36 16917089
100	63 02887877	56 90133936	51 62470367	47 06147304	43 09835164	39 64174052	36 61410526

of An Annuity

$$\text{Present worth of annuity} = \frac{1 - \dfrac{1}{(1+i)^n}}{i}$$

Periods	2¾%	3%	3½%	4%	4½%	5%	6%
1	0 97323601	0 97087379	0 96618357	0 96153846	0 95693780	0 95238095	0 94339623
2	1 92042434	1 91346970	1 89969428	1 88609467	1 87266775	1 85941043	1 83339267
3	2 84226213	2 82861135	2 80163698	2 77509103	2 74896435	2 72324803	2 67301195
4	3 73942787	3 71709840	3 67307921	3 62989522	3 58752570	3 54595050	3 46510561
5	4 61258186	4 57970719	4 51505238	4 45182233	4 38997674	4 32947667	4 21236379
6	5 46236678	5 41719144	5 32855302	5 24213686	5 15787248	5 07569206	4 91732433
7	6 28940806	6 23028296	6 11454398	6 00205467	5 89270094	5 78637340	5 58238144
8	7 09431441	7 01969219	6 87395554	6 73274487	6 59588607	6 46321276	6 20979381
9	7 87767826	7 78610892	7 60768651	7 43533161	7 26879050	7 10782168	6 80169227
10	8 64007616	8 53020284	8 31660532	8 11089578	7 91271818	7 72173493	7 36008705
11	9 38206926	9 25262411	9 00155104	8 76047671	8 52891692	8 30641422	7 88687458
12	10 10420366	9 95400399	9 66333433	9 38507376	9 11858076	8 86325164	8 38384394
13	10 80701086	10 63495533	10 30273849	9 98564785	9 68285242	9 39357299	8 85268296
14	11 49100814	11 29607314	10 92052028	10 56312293	10 22282528	9 89864094	9 29498393
15	12 15669892	11 93793509	11 51741090	11 11838743	10 73954573	10 37965804	9 71224899
16	12 80457315	12 56110203	12 09411681	11 65229561	11 23401505	10 83776956	10 10589527
17	13 43510769	13 16611847	12 65132059	12 16566885	11 70719143	11 27406625	10 47725969
18	14 04876661	13 75351308	13 18968173	12 65929697	12 15999180	11 68958690	10 82760348
19	14 64600157	14 32379911	13 70983742	13 13393940	12 59329359	12 08532086	11 15811649
20	15 22725213	14 87747486	14 21240330	13 59032634	13 00793645	12 46221034	11 46992122
21	15 79294612	15 41502414	14 69797420	14 02915995	13 40472388	12 82115271	11 76407662
22	16 34349987	15 93691664	15 16712484	14 45111533	13 78442476	13 16300258	12 04158172
23	16 87931861	16 44360839	15 62041047	14 85684167	14 14777489	13 48857388	12 30337898
24	17 40079670	16 93554212	16 05836760	15 24696314	14 49547837	13 79864179	12 55035753
25	17 90831795	17 41314769	16 48151459	15 62207994	14 82820896	14 09394457	12 78335616
26	18 40225592	17 87684242	16 89035226	15 98276918	15 14661145	14 37518530	13 00316619
27	18 88297413	18 32703147	17 28536451	16 32958575	15 45130282	14 64303362	13 21053414
28	19 35082640	18 76410823	17 66701885	16 66306322	15 74287351	14 89812726	13 40616428
29	19 80615708	19 18845459	18 03576700	16 98371463	16 02188853	15 14107358	13 59072102
30	20 24930130	19 60044135	18 39204541	17.29203330	16 28888854	15 37245103	13 76483115
31	20 68058520	20 00042849	18 73627576	17 58849356	16 51439095	15 59281050	13 92908599
32	21 10032623	20 38876553	19 06886547	17 87355150	16 78889086	15 80267667	14 08404339
33	21 50883332	20 76579178	19 39020818	18 14764567	17 02286207	16 00254921	14 23022961
34	21 90640712	21 13183668	19 70068423	18 41119776	17 24675796	16 19290401	14 36814114
35	22 29334026	21 48722007	20 00066110	18 66461323	17 46101240	16 37419429	14 49824636
36	22 66991753	21 83225250	20 29049381	18 90828195	17 66604058	16 54685171	14 62098713
37	23 03641609	22 16723544	20 57052542	19.14257880	17 86223979	16 71128734	14 73678031
38	23 39310568	22 49246159	20 84108736	19 36786423	18 04999023	16 86789271	14 84601916
39	23 74024884	22 80821513	21 10249987	19 58448484	18 22965572	17 01704067	14 94907468
40	24 07810106	23 11477197	21 35507234	19 79277388	18 40158442	17 15908635	15 04629687
41	24 40691101	23 41239997	21 59910371	19 99305181	18 56610949	17 29436796	15 13801592
42	24 72692069	23 70135920	21 83488281	20 18562674	18 72354975	17 42320758	15 22454332
43	25 03836563	23 98190213	22 06268870	20 37079494	18 87421029	17 54591198	15 30617294
44	25 34147507	24 25427392	22 28279102	20 54884129	19 01838305	17 66277331	15 38318202
45	25 63647209	24 51871254	22 49545026	20 72003970	19 15634742	17 77406982	15 45583209
46	25 92357381	24 77544907	22 70091813	20 88465356	19 28837074	17 88006650	15 52436990
47	26 20299154	25 02470783	22 89943780	21 04293612	19 41470884	17 98101571	15 58902821
48	26 47493094	25 26670664	23 09124425	21 19513088	19 53560654	18 07715782	15 65002661
49	26 73959215	25 50165693	23 27656450	21 34147200	19 65129813	18 16872173	15 70757227
50	26 99716998	25 72976401	23 45561787	21 48218462	19 76200778	18 25592546	15 76186064
55	28 18526879	26 77442764	24 26405323	22 10861218	20 24802057	18 63347196	15 99054297
60	29 22266201	27 67556367	24 94473412	22 62348997	20 63802204	18 92928952	16 16142771
65	30 12846605	28 45289152	25 51784916	23 04668199	20 95097913	19 16107033	16 28912272
70	30 91937247	29 12342135	26 00039664	23 39451498	21 20211187	19 34267665	16 38454387
75	31 60995558	29.70182628	26 40668868	23 68040834	21 40363360	19 48496995	16 45584810
80	32 21294098	30 20076345	26 74877567	23 91539185	21 56534493	19 59646048	16 50913077
85	32 73944009	30 63115103	27 03680373	24 10853116	21 69511035	19 68381623	16 54894668
90	33.19915489	31 00240714	27 27931564	24 26727759	21 79924075	19 75226174	16 57869944
95	33 60055671	31 32265592	27 48350415	24 39775559	21 88280030	19 80589059	16 60093244
100	33 95104232	31 59890534	27 65542540	24 50499900	21 94985274	19 84791020	16 61754623

Present Value of an Annuity.—The present value of an annuity is that sum which if placed at interest compounded periodically will permit the payment or receipt of a fixed sum at uniform intervals of time. The formula for obtaining this value is:

$$\text{Present value of an annuity } (P.\ V.\ A.) = \frac{1 - \frac{1}{(1+i)^n}}{i} = \frac{D}{i}$$

$$\text{where } \frac{1}{(1+i)^n} = \text{present value of one}$$

$$D = \text{compound discount}$$

In other words, the present worth of an annuity is equal to the compound discount divided by the simple interest for one period. To facilitate solving problems of this nature the tables on pages 148-149 have been devised and their use illustrated in the following example.

Example. A corporation owning a patent with an eight-year life, receives a quarterly royalty in the amount of $5,500 At what value shall it set up this asset upon its balance sheet assuming that money is worth 5% per annum?

Table on page 148 shows the present value of an annuity of $1 at 1¼% for 32 periods as 26.24127418.

$$\$5{,}500 \times 26\ 24127418 = \$144{,}327\ 01,$$

which is the required value of the asset.

NUMBER OF DAYS BETWEEN MONTHS

From Any Day of	To the Same Day of the Next											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Jan.	365	31	59	90	120	151	181	212	243	273	304	334
Feb.	334	365	28	59	89	120	150	181	212	242	273	303
Mar.	306	837	365	31	61	92	122	153	184	214	245	275
Apr.	275	306	334	365	30	61	91	122	153	183	214	244
May	245	276	304	335	365	31	61	92	123	153	184	214
June	214	245	273	304	334	365	30	61	92	122	153	183
July	184	215	243	274	304	335	365	31	62	92	123	153
Aug.	153	184	212	243	273	304	334	365	31	61	92	122
Sept.	122	153	181	212	242	273	303	334	365	30	61	91
Oct.	92	123	151	182	212	243	273	304	335	365	31	61
Nov.	61	92	120	151	181	212	242	273	304	334	365	30
Dec.	31	62	90	121	151	182	212	243	274	304	335	365

SHORTCUTS AND CHECKS

Addition by Columns.—Add each column separately, beginning at the right, placing each result by itself. Then add the totals. Repeat the process, beginning at the left. See (1) below.

"Casting Out 9's."—Add the digits in each number, and divide the sum by 9. Place the remainders to the right of the number. Repeat for all numbers. Find the excesses of 9 in both the remainders and in the total. If the results are the same the result proves. See (2) below.

Subtraction of Excesses of 9's.—Cast out 9's in minuend and subtrahend, and find the difference between the results. This should agree with excess of 9's in the remainder, if the subtraction is correct. See (3) below.

Casting Out 9's in Multiplication.—Find excesses of 9's in multiplier and in multiplicand. The product of these excesses should equal the excesses of 9's in the product. See (4) below.

(1)		(2)		(3)		(4)	
2175	2175	2175	6	465	6	465	6
5490	5490	5490	0	122	5	122	5
6312	6312	6312	3				
5865	5865	5865	6	343	1	930	30
				1		930	
12	18	19842	6			465	
23	16	6					
16	23					56730	
18	12					3 = 3	
19842	19842						

Multiplication by Multiples of 10.—Move the decimal point to the right as many points as there are 0's in the multiplier.

Multiplication of Numbers Ending with Zeros.—Multiply the significant figures. Add as many zeros as there are in both multiplier and multiplicand.

Multiplication by 9, 99, 999, Etc.—First multiply by 10, or 100, or 1,000, etc. Subtract original numbers from the result.

Multiplication by 25, 50, 75, Etc.—To multiply by 25, first multiply by 100; then divide by 4. To multiply by 50, first multiply by 100; then divide by 2. To multiply by 75, first multiply by 100, then divide by 4, and subtract this quotient from the product.

To Divide by 10, 100, 1,000 Etc.—Move the decimal places to the left as many points as there are 0's in the divisor.

To Divide by 25, 50, 75, Etc.—To divide by 25, divide by 100; then multiply by 4. To divide by 50, divide by 100; then multiply by 2. To divide by 75, divide by 100; then increase the quotient by ⅓ of itself.

Casting Out 9's in Division.—Find excesses of 9's in the dividend, divisor, quotient, and remainder. Excesses in dividend should equal excesses in remainder plus excesses in product of excesses of divisor and quotient.

Illustration.—6,793 ÷ 147 = 46, and a remainder of 31.

Excesses of 9's in 6,793 = 7
" " " " 147 = 3
" " " " 46 = 1
" " " " 31 = 4
3 × 1 = 3
Excesses of 9's in 3 = 3
4 + 3 = 7

DECIMAL EQUIVALENTS OF FRACTIONS

1/64	.0156	17/64	.26562	33/64	.5156	49/64	.7656
1/32	.0312	9/32	.28125	17/32	.5312	25/32	.7812
3/64	.0468	19/64	.29687	35/64	.5468	51/64	.7968
1/16	.0625	5/16	.3125	9/16	.5625	13/16	.8125
5/64	.07812	21/64	.32812	37/64	.5781	53/64	.8281
3/32	.09375	11/32	.34375	19/32	.5937	27/32	.8437
7/64	.10937	23/64	.35937	39/64	.6093	55/64	.8593
1/8	.125	3/8	.375	5/8	.6250	7/8	.8750
9/64	.14062	25/64	.39062	41/64	.6406	57/64	.8906
5/32	.15625	13/32	.40625	21/32	.6562	29/32	.9062
11/64	.17187	27/64	.42187	43/64	.6718	59/64	.9218
3/16	.1875	7/16	.4375	11/16	.6975	15/16	.9375
13/64	.20312	29/64	.45312	45/64	.7031	61/64	.9531
7/32	.21875	15/32	.46875	23/32	.7187	31/32	.9687
15/64	.23437	31/64	.48437	47/64	.7343	63/64	.9843
1/4	.25	1/2	.50	3/4	.7500		

RATIO AND PROPORTION

The ratio of one number to another is the quotient obtained by dividing the first by the second. The ratio is expressed either as a fraction, as ⅔, or by a colon between the numbers as 2 : 3.

When two ratios are equal in numerical value, they form a proportion. For example, 2 : 3 = 8 : 12. The extreme terms, 2

and 12, are called extremes. The second and third terms are called the means. Given any three terms of a proportion the fourth can readily be found. The rule for dividing a number in proportion to a given series of numbers is to divide the number by the sum of the numbers in the series and then multiply the quotient by each number of the series. Practical applications of ratios and proportions are frequently found in business. One of the most common is in the distribution of net profits among partners.

Example. A partnership has net earnings for the year amounting to \$136,500 which is to be distributed among the three partners in the ratio of 2, 3, 8.

The sum of this series is 13.
Dividing \$136,500 by 13 gives \$10,500.
Multiplying by the numbers in the series the distribution of profit is as follows:

2 × 10,500 =	\$ 21,000
3 × 10,500 =	31,500
8 × 10,500 =	84,000
Total ..	\$136,500

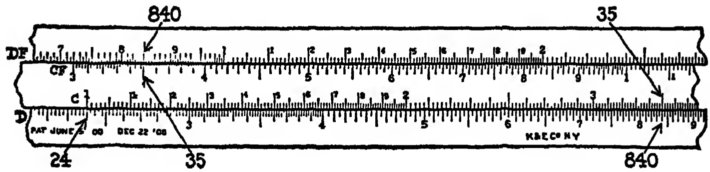
SLIDE RULE

Its Use.—By the use of the slide rule various calculations such as percentages, multiplication, division, etc., can be solved with a minimum of mental effort and in less time than is possible with the ordinary methods of performing such computations. A manual of instructions accompanies every slide rule and in it will be found complete diagrams and full explanations permitting the operator to perform all manner of computations. The 10-inch slide rule gives results which are accurate to 3 or even 4 significant figures. The use of a 20-inch rule will give a higher degree of accuracy.

The Merchant's Slide Rule.—For the business man who is not interested in the computations of problems necessary for the engineer or technical man, a special merchant's slide rule has been devised by Keuffel & Esser Co., of New York. The operation of the merchant's slide rule does not require a special knowledge of mathematics other than that of decimal fractions, even though the principle on which the slide rule operates is based on the theory of logarithms.

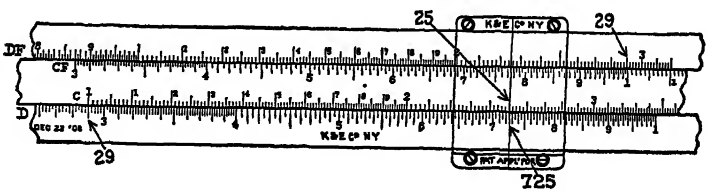
The merchant's slide rule is double-faced with four scales on the face of the rule designated DF, CF, C, and D, as shown below,

and two scales C1 and D on the reverse side. As nearly all computations may be performed on scales C and D, a description of these only will be given here.



Multiplication.—The use of the slide rule for multiplication can be shown by the following example. Multiply 24 by 35. Set the figure 1 at the extreme left of the movable scale C on 24 on the fixed scale D. Next move the slide along scale C until the hair line is directly over 35 on scale C. Read the result directly underneath on scale D. It will be found to be 840. By one setting 24 may be multiplied by an indefinite number of multipliers provided that they can be set on scale C. When the multiplier on scale C no longer appears opposite a number on scale D, it becomes necessary to set the figure 1 at the extreme right of the movable slide C on 24 on the fixed scale. Then proceed as before. A special device is employed on this type of slide rule which obviates the need for this change.

Division.—The use of the slide rule for division can be shown by the following example. Divide 725 by 25. Set the slider over



the dividend 725 on scale D. Then bring the divisor 25 on scale C, to coincide with the dividend 725 on scale D. Read the number on scale D directly under the figure 1 on scale C. In this illustration the quotient is 29. It will be noted that the numbers beginning at the left of scales C and D may be read as 10, 11, 12, and so on, or they may be considered as 1.0, 1.1, 1.2. The ordinary rules for decimal points will determine this.

PROGRESSIONS—ARITHMETICAL AND GEOMETRICAL

Arithmetical Progressions.—A progression is a sequence of terms which proceed according to some fixed law. An arithmetical progression is a sequence of numbers, the difference between any two consecutive terms of which is constant. Thus 3, 6, 9, 12, 15, etc., is an arithmetical progression, the difference between any two consecutive terms being 3. In an increasing arithmetical progression the difference is positive, and in a decreasing one it is negative. If we represent the first term by *a*, the common difference by *d*, the number of terms by *n*, and the last term by an arithmetical progression by *l*, then the last term can be found from the formula:

$$l = a + (n - 1)d$$

The sum of the terms in such a progression is obtained by means of the formula:

$$\text{Sum } (s) = \frac{n(a + l)}{2}$$

When any three of the factors of an arithmetical progression are known, the others may be found by use of the two formulas.

Example. To find the sum of 7 terms of the arithmetical progression 7, 15, 23, 31, etc.

Substitute in the formulas above,

$$a = 7,\ d = 8,\ n = 7;\ l = 7 + (7 - 1)8,$$

$$l = 55;\ s = \frac{7(7 + 55)}{2} = 217$$

Example. Find the total interest to be paid by a corporation on its issue of 5% serial bonds totaling \$750,000, of which bonds in the amount of \$25,000 are to be retired semiannually.

n = number of retirement periods = 30
a = first semiannual interest payment = \$18,750
l = last semiannual interest payment = \$625

Substituting the above in the formula $S = \dfrac{n(a + l)}{2}$

$$S = \frac{30(18{,}750 + 625)}{2}$$

$$= \frac{30 \times 19{,}375}{2}$$

$$= \$290{,}625$$

The total interest paid on the bonds is therefore \$290,625.

Geometric Progression.—A geometric progression is a sequence of terms in which each term except the first is obtained by multiplying the term immediately preceding by a fixed quantity known as the geometric ratio. Thus 6, 18, 54, 162 is a geometric progression with a ratio of 3. As before, let a represent the first term, l the last term, n the number of terms, and r the ratio, then formula for last term of a geometrical progression becomes:

$$l = ar^{n-1}$$

The formula for obtaining the sum of the terms is the following:

$$s = \frac{ar^n - a}{r - 1} \text{ or } \frac{rl - a}{r - 1}$$

The use of such a formula is shown in the following illustration: Find the sum to 6 terms of the geometrical progression: 3, 6, 12, 24. Substituting the values in the formula results in

$$s = \frac{3(2)^6 - 3}{2 - 1} = \frac{192 - 3}{1} = 189$$

AVERAGES—TYPES

Definition.—An average is a number which may be considered representative of a series of numbers. It is frequently used in business as a means for comparing two or more series of numbers or groups. There are various types of averages. The four more important ones are:

1. Simple average
2. Weighted average
3. Moving average
4. Progressive average

Simple Average.—A simple average is an arithmetical mean and is obtained by adding together the units in the series and dividing the sum by the number of units.

Example. A problem illustrative of the method of finding a simple average frequently met with in business is to find the average profits of a concern for a given number of years, say from 1930 to 1934, inclusive:

Year	Net Profit
1930	\$ 82,300
1931	61,200
1932	58,000
1933	86,600
1934	94,000
Total	\$382,100

$$\text{Average is } \frac{\$382{,}100}{5} = \$76{,}420$$

Weighted Average.—A weighted average is necessary where the values entering into the computation differ in character in two or more ways.

Example. What is the average salary paid to the office staff?

No. of Individuals	Yearly Salary	Total
12	$ 1,800	$21,600
6	900	5,400
5	2,400	12,000
7	3,000	21,000
2	4,200	8,400
3	5,000	15,000
1	7,200	7,200
36	$24,500	$90,600

The simple average of the yearly salary would be $24,500 ÷ 7 = $3,500. This is absurd. The correct solution is obtained by dividing $90,600 by 36, which gives $2,516.67.

Moving Average.—A moving average is obtained by taking the simple average of a group of terms. Then the first term of this group is dropped, a new term is added, and a simple average is again obtained of the new group of terms. This process is continued until the entire series of terms has been exhausted. The number of terms in each group averaged must always remain the same.

Moving averages are used with best success in industries where there are no seasonal fluctuations. The example that best illustrates a moving average is that of obtaining the average monthly sales over a period of years.

Example. The following figures represent the monthly sales of a concern for a 2-year period expressed in round numbers:

	1933	1934		1933	1934
Jan.	$12,000	$17,500	July	$12,500	$19,000
Feb.	11,500	16,000	Aug.	14,000	19,500
Mar.	11,700	17,000	Sept.	15,000	22,000
Apr.	12,000	18,000	Oct.	16,000	26,000
May	11,000	18.500	Nov.	16,500	27,000
June	13,000	19,000	Dec.	18,000	30,000

Taking the year as the basis, first find the average for the 12 months, January to December 1933, which amounts to $13,600 Next find the average for the 12-month period, February 1933 to January 1934 That is, January 1933 is dropped from the computation, while January 1934 is

included. The average is then found to be $14,058.33. This process is continued, each time 1 month being dropped at the beginning and one added at the end of the yearly period, until December 1934 is included. The following series is the result:

Period (dates inclusive)	Moving Average	Period (dates inclusive)	Moving Average
Jan. 1933—Dec. 1933	$13,600.00	Aug. 1933—July 1934	$17,041 67
Feb. " —Jan. 1934	14,058 33	Sept. " —Aug "	17,500 00
Mar. " —Feb. "	14,433 33	Oct. " —Sept. "	18,083 33
Apr. " —Mar. " .	14,875 00	Nov. " —Oct. "	18,916.67
May " —Apr. " ..	15,375.00	Dec. " —Nov. "	19,791 67
June " —May "	16,000.00	Jan. 1934—Dec. "	20,791.67
July " —June " .	16,500.00		

Progressive Average.—A progressive average differs from a moving average in that a simple average of the first two terms of a series is first obtained; then a simple average of the first three terms is obtained and so on. Each time the simple average is taken of one more term than the preceding time until a final simple average is obtained of all terms in the series. A progressive average tends to smooth over peaks and depressions and to make the result appear to be more uniform than the conditions warrant.

Example. The following table shows the progressive average for the data given in the preceding illustration. The first average is for the first 2 months of 1933, and the following averages are secured by including an additional month each time.

	Progressive Average		Progressive Average
Jan. 1933—Feb. 1933...	$11,750.00	Jan. 1933—Feb. 1934	$14,050 00
" " —Mar. " . .	11,733 33	" " —Mar. "	14,246 67
" " —Apr. " . . .	11,800 00	" " —Apr. " ..	14,481.25
" " —May "	11,640 00	" " —May "	14,717 65
" " —June "	11,866 67	" " —June " ..	14,955 56
" " —July "	11,957.14	" " —July "	15,168 42
" " —Aug. "	12,212 50	" " —Aug. " . .	15,385 00
" " —Sept. "	12,522.22	" " —Sept. " .	15,700 00
" " —Oct. " ...	12,870 00	" " —Oct " . .	16,254 55
" " —Nov. " ...	13,200.00	" " —Nov. "	16,639.13
" " —Dec. " ...	13,600 00	" " —Dec. " ..	17,195.83
" " —Jan. 1934....	13,900.00		

AVERAGING ACCOUNTS

Averaging accounts is the process of finding a single date when settlement of an account, consisting of several items due at different dates, may be made without loss of interest to either party to

the transaction. The equated date is the due date or date of settlement as determined by averaging the accounts.

The focal date is the assumed date of settlement for the purposes of computing the equated date. The focal date may be any date in the account, but it is usually more convenient to use the earliest or latest date.

To Find the Equated Date of a One-Sided Account.—Take the following illustration from the books of a company.

	Amount	Terms	Due Date	Days to Focal Date	Day Dollars
Feb. 10	$ 600	30 days	Mar. 12	38	$22,800
Feb. 18	1,550	60 "	Apr. 19	—	—
Mar. 8	920	30 "	Apr. 7	12	11,040
	$3,070				$33,840

This account might have been settled on March 12, April 7, and April 19, but the debtor finds that he is unable to meet the account due March 12 and promises the creditor that he will anticipate one or both of the other two items so that the creditor will not have lost anything. Or again, it may be necessary to find the average date in order that interest may be computed on the balance instead of on the individual items in the account The problem is to determine the date that payment can be made in order that the account may be settled equitably between the interested parties.

To solve this problem take the latest date, April 19, as the focal date. Determine the number of days to the focal date as shown. Multiply the amount by the number of days to obtain the day dollars. The sum of day dollars, 33,840, divided by the total amount due in the account, $3,070, gives 11 days. This is the number of days back from the focal date to the equated due date to be found which is, therefore, April 8.

Averaging Compound Accounts.—Compound accounts contain both debit and credit items, and when there are several items on each side, the computation becomes a trifle more complex but the principle remains exactly the same.

1. Choose a focal date, using the same one for the debit and the credit side.
2. Find the number of days from the due date of the account to the focal date.

3. Compute the day dollars.
4 Find the balance of the account.
5. Find the difference in the day dollars, debit and credit.
6. Divide item 5 by item 4.
7. If the difference in the day dollars, debit and credit, is on the same side of the account as the balance of the account, count the number of days backward from the focal date When the balances are on opposite sides, count the days forward from the focal date.

Illustrations of Averaging Compound Accounts.—Following are two examples to illustrate the operation of the rules set forth above.

Merchandise was purchased as follows:

May 28	$1,500 n/60
June 6	2,350 n/60
June 17	3,100 n/30
June 28	1,600 n/30

Payments were made as follows:

July 17	$2,000
July 23	1,800

Find the equated due date.

Debit				Credit			
Due Date	Amount	Days to Focal Date	Day Dollars	Date Paid	Amount	Days to Focal Date	Day Dollars
July 17	$3,100	19	$58,900	July 17......	$2,000	19	$38,000
July 27......	1,500	9	13,500	July 23.... .	1,800	13	23,400
July 28.....	1,600	8	12,800				
Aug. 5......	2,350	—	—				
	$8,550		$85,200		$3,800		$61,400
	3,800		61,400				
	$4,750		$23,800				

Dividing 23,800 by 4,750, gives 5 days, from the focal date, August 5, which makes July 31 as the equated due date. Proof:

Debit				Credit			
Date	Amount	Days to July 31	Day Dollars	Date Paid	Amount	Days to July 31	Day Dollars
July 17......	$3,100	14	$43,400	July 17... ..	$2,000	14	$28,000
July 27	1,500	4	6 000	July 23	1,800	8	14,400
July 28	1,600	3	4 800	July 31	4,750	—	—
			54,200				
Aug. 5......	2,350	5 disc.	11,750				
	$8,550		$42,450		$8,550		$42,400

The fact that the amount due on August 5 would be paid in advance makes it an item of discount and consequently affects the account in the same manner as a credit does.

As illustrative of the second type of problem take the same data as in the foregoing example with the exception of the payments which are as follows:

July 17	... .	$3,000
July 25	. . ..	1,600
July 27	... .	2,040

Debit				Credit			
Due Date	Amount	Days to Focal Date	Day Dollars	Date Paid	Amount	Days to Focal Date	Day Dollars
July 17	$3,100	19	$58,900	July 17	$3,000	19	$57,000
July 27	1,500	9	13,500	July 25.	1,600	11	17,600
July 28.... ..	1,600	8	12,800	July 27.	2,040	9	18,360
Aug. 5	2,350	—	—				
	$8,550		$85,200		$6,640		$92,960
	6,640						85 200
	$1,910						$ 7,760

In this instance the balance in day dollars is on the credit side while the balance in the account is debit.

$$7{,}760 \div 1{,}910 = 4 \text{ days}$$

As the fractional part is less than half a day, it may be dropped. Since the balance of the day dollars is on the credit side while the balance of the account is a debit, we count 4 days forward from the focal date and arrive at August 9 as the equated due date. Proof:

Debit				Credit			
Due Date	Amount	Days to Aug 9	Day Dollars	Date Paid	Amount	Days to Aug 9	Day Dollars
July 17......	$3,100	23	$ 71,300	July 17......	$3,000	23	$ 69,000
July 27.....	1,500	13	19,500	July 25.... .	1,600	15	24,000
July 28	1,600	12	19,200	July 27 ..	2,040	13	26,520
Aug. 5.... .	2,350	4	9,400	Aug. 9......	1,910	—	—
	$8,550		$119,400		$8,550		$119,520

The difference of 120 day dollars out of a total of 119,400 shows that the fractional part over 4 days which was dropped was negligible.

SOURCES AND CHARACTER OF SURPLUS

Earned Surplus.—The surplus of a corporation is the excess of the book value of its assets over the sum of the liabilities to creditors and capital stock. It is either earned or capital surplus. Earned surplus consists of the accumulated profits which the corporate directors in their discretion have not seen fit to distribute in dividends to the stockholders. It may be free, that is, subject to disbursement in dividends or it may be reserved or appropriated for various corporate purposes.

Capital Surplus.—Capital surplus is that arising from any or all other sources than earnings. To all intents and purposes it is a part of the permanent investment of the corporation but not from the viewpoint of the law, as only the capital stock is recognized as such. The law in a number of states permits the declaration of dividends from capital surplus. However, a company may be barred from taking advantage of this law by a charter provision permitting dividends only from earnings.

The ordinary sources of capital surplus are as follows:

1. Paid-in surplus
    - (a) Gifts of assets to the corporation
    - (b) Sale of stock
        - (1) Par stock at premium
        - (2) No-par stock with stated value
        - (3) No stated value stock
    - (c) Donation of stock
    - (d) Profit on stock
    - (e) Stock assessments
    - (f) Cancellation of indebtedness
    - (g) Forfeited subscriptions
    - (h) Reduction of capital
2. Other sources
    - (a) Surplus from appreciation
    - (b) Surplus from a merged company
    - (c) Surplus in consolidation
    - (d) Surplus in a holding company
    - (e) Surplus in reorganization of solvent corporations
    - (f) Surplus in reorganization of insolvent concerns
    - (g) Surplus of a recapitalized corporation

STATEMENT OF SURPLUS—FORM AND USE

This is a schedule supporting the surplus item or items of the balance sheet, showing the detail of all entries affecting the surplus account made during and at the close of the current period. It is particularly desirable when the statements are prepared for internal use, though it is frequently included, along with the balance sheet and income statement, in reports to stockholders in more or less summarized form.

Simple Surplus Structure.—In the case of a simple surplus structure, limited to unappropriated earned surplus, the surplus

CANADA DRY GINGER ALE, INCORPORATED

(Delaware)

AND SUBSIDIARY COMPANIES

Summary of Consolidated Earned Surplus for the Years Ended September 30, 1933 and 1932, and Comparison

	Year Ended September 30 1933	1932	Increase *Decrease*
The Balance at the Beginning of the Period was	$4,527,336 38	$4,699,383 01	$ *172,046 63*
Additions:			
Net Income for the Year	457,087.69	423,821.61	33,266.08
Adjustment of working capital resulting from appreciation of Canadian exchange since September 30, 1931	33,680 73	10,599.70	23,081 03
Adjustment of Reserves for Depreciation	477,916 03		477,916 03
Unclaimed wages of prior years	8,251 02		8,251 02
Total	$5,504,271 85	$5,133,804 32	$ 370,467 53
Deductions:			
Dividends Declared Payable in Cash	$ 507,959 00	$ 605,204.40	$ *97,245 40*
Federal and Canadian Income Taxes of Prior Years	50,548 27		50,548 27
Provision for Reserve to Reflect Shrinkage in market Value of Investment Securities	303,160.06		303,160 06
Write-down of the Book Value of Delivery Cases, and Write-off of Improvements to Leased Properties and Electric Signs and Display Racks	423,304 18		423,304.18
Write-off of Capital Surplus Charges in Excess of Capital Surplus Credit	41,292.30		41,292.30
Provision for Reserve for Future Property Adjustments	13,319 55		13,319 55
Miscellaneous *This includes loss on disposal of machinery and equipment, additional taxes applicable to preceding year, etc*	8,761 54	1,263 54	7,498 00
Total Deductions	$1,348,344 90	$ 606,467 94	$ 741,876 96
Earned Surplus at End of the Year *Representing the accumulated earnings of the companies after deducting dividends and all other earned surplus charges*	$4,155,926 95	$4,527,336 38	$ *371,409 43*

Summary of Consolidated Capital Surplus for the Year Ended September 30, 1933

Capital Surplus Credit—Reduction of Capital Stock from Stated Value to Shares of $5.00 Each		$733,311.00
Capital Surplus Charges:		
Write-down of Gross Book Values of Properties	$572,347.04	
Less Corresponding Reduction in Depreciation Reserves, Representing Depreciation Previously Provided on the Excess of Cost Over Revised Book Values of Properties	141,705 82	
Remainder—Reduction of Net Book Values of Properties to Adjust to the Basis of New Price Levels		$430,641 22
Write-down of treasury stock from cost to market value		308,609.20
Provision for reserve for obsolete bottles		35,352.88
Total capital surplus charges		$774,603 30
Excess of Capital Surplus Charges Over Credit—Transferred As Charge Against Earned Surplus		$ 41,292 30

statement may start with the amount at the close of the previous period, then show any adjustments of this amount for prior periods, next the debits and credits for the current period, the net profit or loss transferred to it, and finally all dividends declared and other appropriations made from it. The balance will be the amount of free surplus.

More Complicated Surplus Structure.—In the case of a more complicated surplus structure including capital, appropriated earned surplus, and unappropriated earned surplus, one statement may cover all three items, or separate statements may be given for capital and for earned surplus, the latter including both the appropriated and the unappropriated earned surplus. Most changes will ordinarily appear in the earned surplus statement.

As published in annual reports the surplus statement assumes various forms, though basically they are all the same. The preceding page shows the statements for earned and for capital surplus of Canada Dry Ginger Ale, Incorporated.

DIVIDENDS—THEIR VARIOUS FORMS

Corporations declare dividends in various forms, as follows:

1. A cash dividend is payable in cash. The term "dividend," when not qualified in some way, refers to a cash dividend.
2. A property dividend is payable in some kind of property other than cash. It may be in investment securities, merchandise, real estate, or whatever else is designated in the minutes. Usually it consists of investment securities because of their divisible nature.
3. A bond dividend is paid in the company's own bonds.
4. A scrip dividend is paid in "scrip," i e., promissory notes, usually interest-bearing. This kind of dividend is sometimes declared by corporations desiring to continue dividend payments even though cash funds are temporarily tied up. The scrip may be payable at a specific date or at the option of the company.
5. A stock dividend is paid in treasury stock or unissued stock of the paying corporation.
6. A liquidating dividend is fundamentally different from the periodic dividend. The cash, property, scrip, and stock dividends represent the distribution of surplus to the stockholders. A liquidating dividend represents the transfer of the corporate assets in repayment of the stockholder's investment and hence is charged against the capital stock account.

CONTROLLING FACTORY PRODUCTION

In any process of production it is necessary to plan in advance, but planning is of little value unless there is subsequent control to make certain that these plans are followed. Production control methods must be developed to fit the needs and conditions found in each individual plant. Any method used should be flexible and provide for taking care of breakdowns and other contingencies likely to happen in the shop.

The elements which enter into production control, as given in the "Cost and Production Handbook," are as follows:

1. *Demand.* A knowledge of what to make, the quantity and size of each product to make, and the time in which to make it or to meet variations in demand.
2. *Product analysis.* An analysis of the products so as to determine their component parts and the materials required for the manufacture of them.
3. *Material control.* Complete up-to-the-minute knowledge of the amount of material on hand in the storeroom, the amount on order but not delivered, the amount appropriated or reserved for definite manufacturing orders, and the amount available for future manufacturing orders.
4. *Routing.* The determination and the assignment of sequence of operations, of the standard time required for each operation and of the place at which each operation should be performed.
5. *Scheduling.* Scheduling is the determination of the relative time at which each operation or event in connection with manufacturing will occur.
6. *Dispatching.* Dispatching is the releasing of work and the directing of its movements in accordance with the route and schedule laid down for it.
7. *Time study.* Basic and underlying all economical manufacturing is time study work which in its broad meaning includes job standardization.

FACTORY STOCK RECORDS

The proper control of inventories demands a modern system of record procedure known as the perpetual inventory, which consists of keeping a running record of the various items of materials and goods kept in stores.

Perpetual Inventory Form.—Many different forms are in use for a continuous record of stores. The form below is designed to

obviate certain difficulties in pricing which are liable to occur when some of the ordinary forms are used. Amounts received are brought into the "amount received" column and carried over and added to the previous balance in the "amount on hand" column. The price per unit of the amount received is entered in the "price per unit" column. Entries for succeeding receipts of material are similarly entered. When material is issued on requisition, the amount is entered in the "amount issued" column, and deducted in the "amount on hand" column. The price of valuing the material issued is taken from the "price per unit" column of the first line not checked in the second "Ck." column. This process is continued until the first amount is exhausted, after which the price is taken from second unchecked line in the "price per unit" column, and so on.

STOCK RECORD

Date 19-	Amount Received	Ck.	Price per Unit	Amount on Hand	Amount Issued	Ck.	Order No.	Date
3/7	200.00	1	20	200.00			Pur. 548	
3/17	300.00	2	25	500.00			Pur 554	
				400.00	100.00	1	R. 25	3/12
				200.00	200.00	2	R. 36	3/20

Keeping the Stores Record.—Stores or Raw Materials account in the general ledger is charged with stock purchased at end of each month, and credited with all materials withdrawn from stock, and it is essential to secure coordination between the stores records and the general ledger account. The stores records are kept sometimes in the stores department; sometimes in the planning department. The danger lies chiefly in lack of coordination between the person responsible for the stores inventory and the accountant responsible for the accuracy of the general ledger. The requisition on which material should be withdrawn from the

storeroom should show quantity of stock withdrawn, what account is to be charged, and to what department it is to be delivered. Here pricing is necessary and discrepancies arise because the pricing may be done wrongly. If so, the credit to Stores or Raw Materials account in the general ledger is also wrong, and the balance of this account no longer represents true value of stores on hand. Much depends upon the designing of the store record form and also upon the instructions drawn up for its use, especially the latter.

MATERIALS CONTROL IN FACTORY PRODUCTION

Need of Materials Control.—Lack of adequate control of materials, resulting in an unbalanced stock with its accompanying evils, is frequently a weak spot in an otherwise strong organization. Valuable material taken from stores without authority or record of how the material is used not only results in a waste of capital but tends to undermine the morale of the working force. The remedy for such conditions is an adequate system of material control—from the determination of materials required to the issuance of materials upon requisition to the proper person and the accounting of goods issued to the production order.

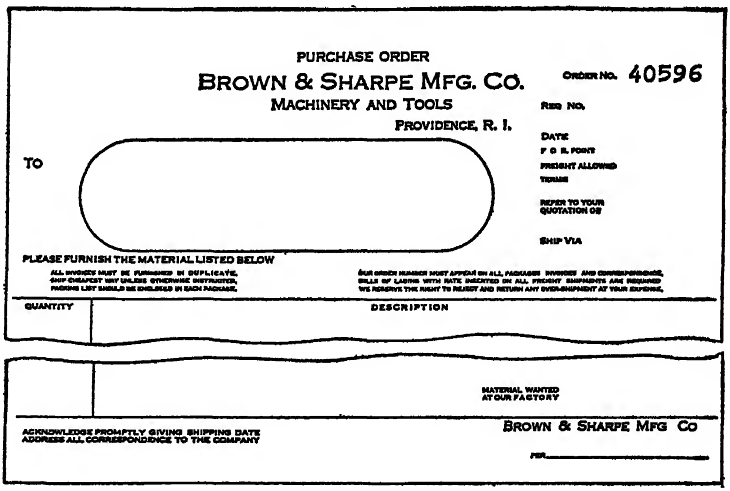
Essential Steps in Control.—Following steps in the order given are essential to the adequate control of materials:

1. Purchase requisition made out by authorized person.
2. Purchase order written by purchasing department and copy sent to the controller's department, to the receiving room, and to the stock ledger clerk.
3. Materials received, checked against purchase order as to condition and quantity and inspected as to quality to see that they fully meet the specifications under which they were purchased. Defective material tags attached to such portions as do not pass inspection and reports sent to purchasing agent for adjustment.
4. Accepted materials sent to storeroom and there placed in proper location. Entries made on bin tag and on stock ledger.
5 Materials issued on authorized requisitions. Deductions made on bin tag and on stock ledger. Record of materials issued sent to cost division for purpose of cost allocation.
6 Materials received in storeroom from manufacturing orders (after processing and inspection).

7. Unused materials and materials received from other sources than through the purchasing department should be inspected, placed in proper location in storeroom, entries made on bin tag and on stock ledger and notice sent to the cost division so that proper entries may be made.
8. At intervals physical check of materials on hand against stores records.

PURCHASE CONTRACT

The two generally recognized forms of purchase contract are: (1) a blanket contract usually covering a large quantity of raw materials or supplies for which no definite delivery dates are scheduled, or if scheduled, extending over a long period of time and more or less subject to special conditions arising from time to time; and (2) a single purchase order contract covering a particular purchase and originating from a purchase requisition (see illustration above).



The single purchase contract growing out of a purchase requisition on which bids were obtained is the usual purchase order form. This type of purchase order can also be used to give the delivery and shipping directions for the periodic shipments required on a blanket purchase contract.

Every purchase order should include the following:

1. Name of the vendor to whom the order is given.
2. A description of the goods desired.
3. The quantity and units of goods wanted.
4. The price to be paid, including terms of payment, etc.
5 When delivery is to be made.
6. Shipping directions.
7. Any special identification marks for packages.
8. Any special conditions or references not written out in detail in the order.
9. The signature of the purchaser representing the company.

TIME STUDY IN FACTORY PRODUCTION

The purpose of time study and job standardization in manufacturing is threefold: (1) to determine the one best way of doing a task and the proper elapsed time for doing the task in the one best way; (2) to secure better and more accurate control in planning; (3) to serve as a basis for the setting of fair and adequate wage rates.

Time study divides itself into the following, according to the "Cost and Production Handbook":

PRELIMINARY.—Recording and analyzing existing conditions as to process, equipment, arrangement, material handling, etc., to determine whether best and least fatiguing methods are being used.

COLLECTION OF DATA.—Breaking down operation into elementary operations or motion elements.

ANALYSIS.—Critical study of these "elements" discarding those that are useless and inefficient, and improving others until they are best obtainable. This step includes improvement of methods, tools, and location of parts. It usually involves study of motions and time alternately.

SYNTHESIS.—Putting together these improved "elements" into best combination, and fixing their base times.

ALLOWANCES.—Determining allowances for necessary delay and for fatigue.

Write-up.—Standardizing all findings by reducing them to some form of written standard practice Drawing up detailed instructions covering tools necessary, elementary operations involved in detail and in proper sequence with time allowed for each.

Rate-Setting—Determining proper wage rate and incentives.

Application.—Training workman to perform task in manner and time set.

Control of Conditions.—Maintaining requisite working conditions, equipment, and supply of material.

WAGE SYSTEMS AND INCENTIVES

To the average workman the question of wages is of the first importance in his relationship with his employer. If the wages are not "right," he becomes discontented and a high rate of labor turnover results. Various forms of wage systems have been devised to meet this problem, of which the following are the most important as given in the "Cost and Production Handbook."

Day Rate.—The oldest and simplest method of wage payment and the one in most general use is the day rate plan whereby the employees are paid a definite sum per hour, day, or week, irrespective of the amount or quality of the work turned out and the general efficiency of the worker. Executives and supervisory positions almost invariably are paid by the year or by the month, clerks and other office help generally are paid by the week, and manual workers by the hour.

Piece Rate.—Piece rate is the oldest and most common production payment method. Under this wage plan the worker is paid a fixed rate per unit produced with no day wage guaranteed. In order that a system of piece work payment can be made effective it is essential that piece rates be set only after careful study of all influencing factors so that the rates once set will not have to be revised. Rates should only be revised where there is a change made in the machinery, tools or equipment or the materials used, or in the methods, processes, or design of product.

Halsey Premium Plan.—The Halsey premium plan provides a standard time for performing a given job with a definite per cent

of all time saved given to the worker as a reward for completing the task in less time than the standard set. The hourly wage is guaranteed for all time put in irrespective of output. If the worker completes his task in less than the standard time he receives his hourly wage for each hour worked and, in addition, a definite proportion of the savings between the actual and standard in cost of direct labor.

Rowan Premium System.—The Rowan premium plan is similar to the Halsey plan in that it guarantees an hourly wage for all hours put in and that the standard time set is based upon records of past performance and not upon scientific study. It differs in that instead of giving the worker a fixed percentage of all time saved, it adds to his actual working time a percentage of his actual time equal to the percentage of reduction which the worker has made on the standard time.

Taylor Differential Piece Rate System.—The Taylor differential piece rate plan provides for standards scientifically set. In order to furnish a strong incentive to the ambitious and skillful worker a high piece rate is set to be paid to the workers who achieve an output equal to or greater than the standard. Similarly, inefficient workers are penalized by being paid a lower piece rate when their output falls below the standard.

Gantt Task and Bonus Plan.—Under this plan the workman is guaranteed a minimum day rate even if he fails to accomplish the task set. If he meets or exceeds the task he is given his hourly rate for the time allowed for a task plus a fixed percentage of that time as bonus. The bonus may be anywhere from 20% to 50% of standard time, depending upon the nature of the work and the amount of incentive required to insure best efforts on the part of the workers.

Emerson Bonus System.—Under the Emerson bonus system a day rate is guaranteed with a bonus on a graduated scale paid according to production efficiency. The salient points of the plan are:

1. Day rate guaranteed.
2. The standard times allowed are determined after a careful time and motion study of the operations under actual production conditions.

3. A bonus is paid after 66⅔% of the standard has been attained.
4. The worker is paid for the actual time spent on the task plus his bonus percentage of that time
5. The worker's bonus is calculated for a pay period and not for each separate job

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COMMON AILMENTS OF INDIVIDUAL BUSINESS

Gilman ("Analyzing Financial Statements") lists the following eight common ailments of business:

1. Overinvestment in receivables—an outcome of a too liberal credit policy or lax collection effort. The ailment frequently results from a timid policy in effecting collections caused by the fear of losing customers.
2. Overinvestment in inventories—a result of excessive or unbalanced buying and carrying an accumulation of obsolete parts or finished goods or materials which have deteriorated. A swollen inventory may carry with it grave financial dangers, though ordinarily it can be corrected without very much difficulty, once the condition is recognized.
3. Overinvestment in fixed assets—a serious situation because it is difficult to remedy, and usually occurring during periods of prosperity. It brings about increased costs all along the line, and calls for a high budget of sales. It often results in a reduction of working capital or an increase in bonded indebtedness with consequent heavy fixed charges.
4. Insufficient capital—perhaps the most common of all business ailments and one which most business men seem most willing to admit. Often, however, the insufficiency is due to poor business management.
5. Insufficient sales—to be studied in relation to plant capacity, the state of the particular industry, general business conditions, and other fundamental business factors.
6. Excessive cost of goods sold—resulting in an insufficient margin of gross profit. The cure is by tracing the responsibility for the poor results by means of an effective cost system of accounts.
7. Excessive operating expense—resulting frequently from the difficulty of controlling selling and administrative costs, particularly the former.
8. Excessive distribution of dividends—a failure to accumulate sufficient surplus and reserves and maintain an adequate supply of working capital against the various emergencies and contingencies that may arise in the future.

METHODS OF FINANCIAL STATEMENT ANALYSIS

In analyzing financial statements, some of the methods used are designed to throw light on relationships between various figures of the same or approximately the same date, while others assist in tracing changes in figures from one period to another. The following list includes the principal methods of analysis, with a brief explanation of each:

I. Methods for showing relationship between figures of the same date.

1. Component percentage method, which consists of reducing each item of the balance sheet to a percentage of the total assets or liabilities, and each item of the income statement to a percentage of sales.

The following balance sheet illustrates this method:

	1932		1933		1934	
	Amount	%	Amount	%	Amount	%
ASSETS:						
Cash	$ 11,077.81	5	$ 15,645.76	7	$ 9,961.53	5
Receivables .	55,697.47	24	38,098.87	17	27,661.28	13
Inventories	49,930.45	21	60,367.29	27	77,826.51	36
Fixed Assets .	100,579.21	43	95,223.09	43	86,686.72	41
Other Assets .	15,178.08	7	13,091.68	6	10,995.18	5
	$232,463.02	100	$222,426.69	100	$213,131.22	100
LIABILITIES AND NET WORTH:						
Current Liabilities . ..	$ 16,469.89	7	$ 9,455.41	4	$ 13,693.19	6
Net Worth	215,993.13	93	212,971.28	96	199,438.03	94
	$232,463.02	100	$222,426.69	100	$213,131.22	100

2. Deviations from standard method, or comparison of the items of the actual statements with the corresponding figures in the estimated balance sheet and income statement of a budget, which represent the goal set by the management for any period taken.
3. Ratio method, or calculating the ratios or relationships between various items within the balance sheet or within the income statement or between one item of the balance sheet and one of the income statement. These are the familiar financial and operating ratios. Analysis may consist of comparing the actual ratios with those of companies in the same line of business or with standard ratios, established by averaging on some reasonable basis the actual ratios for a number of representative concerns in the same line of industry. (See "Financial and Operating Ratios in Statement Analysis")

II. Methods of showing changes in the figures in the statement from period to period:

1. Increase and decrease method, which presents a balance sheet or income statement in comparative form showing the respective increases or decreases for the several items either in amounts or percentages, or both.

The following balance sheet shows the amount increases and decreases:

	1933	1934	Increase	Decrease
Assets:				
Cash	$ 22,887.68	$ 11,077 81	$	$11,809.87
Receivables	53,252.57	55,697.47	2,444.90	
Inventories	47,524 81	49,930 45	2,405 64	
Fixed Assets	101,484 78	100,579.21		905.57
Other Assets	9,906.30	15,178.02	5,271 78	
	$235,056 14	$232,463 02	$10,122 32	$12,715 44
Liabilities and Net Worth:				
Current Liabilities	$ 20,640.27	$ 16,469.89		$ 4,170 38
Net Worth	214,415 87	215,993 13	1,577.26	
	$235,056.14	$232,463.02	$ 1,577 26	$ 4,170 38

2. Trend percentage method, as developed by Gilman in "Analyzing Financial Statements," by which the trend of the various items of the statements cover a period of years is indicated by means of percentages calculated on the basis of the items for the first year of the period taken, which is considered to be 100%. Thus, an analysis of the trend of the inventory item for four successive years may be represented as 100%, 108%, 125%, 95%, the item for the second, third, and fourth years being figured as percentages of the item for the first year.

This method of analyzing statements is shown by the following balance sheet:

	1933	Trend Per Cent	1934	Trend Per Cent
Assets:				
Cash	$ 22 887.68	100%	$ 11,077 81	48%
Receivables	53,252.57	100	55,697 47	105
Inventories	47,524 81	100	49,930.45	105
Fixed Assets	101,484.78	100	100,579 21	99
Other Assets	9,906.30		15,178 08	
	$235.056 14		$232,463 02	
Liabilities and Net Worth:				
Current Liabilities	$ 20,640 27	100%	$ 16,469 89	80%
Net Worth	214,415 87	100	215,993 13	100
	$235,056 14		$232,463 02	
Sales	$272.787 07	100	$239,313 42	88

COMPARATIVE STATEMENTS AND THEIR USE

Comparative statements are balance sheets, income statements, and other reports showing figures for two or more years or other periods. If only for two years, it is customary to show the increases or decreases in one or two additional columns. A typical form of comparative balance sheet is shown on the following page. Such statements lend themselves better to analysis than the statement with one period's figures. One of the purposes the comparative balance sheet may be made to serve when published and the relative income statement is not available, is to determine the net profit for the period, provided the amount of dividends disbursed during period is also known. Any increase shown in the surplus account plus the amount of the dividends paid represents the net earnings.

FINANCIAL AND OPERATING RATIOS IN STATEMENT ANALYSIS

In analyzing and interpreting financial statements the following eight ratios are most generally employed by many practical analysts, as pointed out by Gilman ("Analyzing Financial Statements"):

1. *Quick assets divided by current liabilities.* Quick assets consist of cash and receivables. This is known as the "acid test" ratio, and is of value as a quick index of debt-paying capacity. Many credit men use a standard of 1 to 1 as a basis of comparison. While this is more or less arbitrary, it has value if used with discrimination.
2. *Current assets divided by current liabilities.* The difference between this ratio and the "acid test" ratio is the inclusion of inventory in the former. It is an important difference, however, because of the importance of the inventory item in trading and manufacturing concerns. It has been customary to apply the standard of 2 to 1 to this ratio. Such a standard is, however, a very arbitrary one.
3. *Sales divided by receivables.* This ratio is frequently referred to as the turnover of receivables and measures the comparative amount of capital invested in the receivables account and the relative efficiency with which collections are made. (See "Turnover of Receivables")

COMPARATIVE BALANCE SHEET
JUNE 30, 1934, AND JUNE 30, 1933

	1934	1933	Increase + Decrease −
Assets			
CURRENT ASSETS:			
Cash.	$ 25,000 00	$ 20,000.00	+$ 5,000.00
Notes Receivable	15,000 00	16,000 00	− 1,000 00
Accounts Receivable.....	150,000 00	125,000 00	+ 25,000.00
Merchandise	100,000 00	110,000 00	− 10,000.00
Advertising Supplies.....	5,000 00	4,000 00	+ 1,000 00
Total Current Assets.	295,000 00	275,000 00	+ 20,000 00
FIXED ASSETS:			
Land	50,000 00	30,000 00	+ 20,000.00
Plant and Equipment....	250,000 00	225,000 00	+ 25,000 00
Total Fixed Assets...	300,000 00	255,000 00	+ 45,000 00
OTHER ASSETS:			
Organization Expense....	1,000 00	1,500 00	− 500 00
TOTAL ASSETS.......	$596,000 00	$531,500 00	+$64,500 00
Liabilities and Reserves			
CURRENT LIABILITIES:			
Notes Payable	50,000 00	75,000.00	− 25,000.00
Accounts Payable	40,000 00	50,000 00	− 10,000 00
Accrued Sales Salaries ...	5,000 00	3,000 00	+ 2,000.00
Total Current Liabilities	95,000 00	128,000 00	− 33,000.00
FIXED LIABILITIES:			
Bonds Payable..........	150,000 00	100,000 00	+ 50,000 00
Total Liabilities.....	245,000 00	228,000 00	+ 17,000 00
VALUATION RESERVES:			
Reserve for Doubtful Accounts.	5,000 00	3,000.00	+ 2,000.00
Depreciation Reserve Plant and Equipment..	40,000 00	30,000 00	+ 10,000 00
Total Reserves......	45,000 00	33,000.00	+ 12,000 00
TOTAL LIABILITIES AND RESERVES...	$290,000 00	$261,000 00	+$29,000 00
Net Worth			
Capital Stock...............	200,000.00	175,000 00	+ 25,000 00
Surplus....	106,000 00	95,500 00	+ 10,500 00
TOTAL NET WORTH..	$306,000 00	$270,500 00	+$35,500 00

Dividends paid amounted to: for 1933, $7,000; for 1934, $12,000

4. *Sales divided by inventory.* This ratio is a useful index of merchandising efficiency—of the purchasing policy in relation to the general sales program. (See "Inventory Turnover.")
5. *Sales divided by net worth.* On the general theory that sales volume should bear some logical relation to the size of the company as indicated by the net worth, this ratio is often used as one of the tests of insufficient sales.
6. *Net worth divided by fixed assets.* This ratio is employed as one of the tests for overinvestment in fixed assets. A tendency shown by the ratio to decline is an indication of an increasing amount of the company's capital being locked up in the property account.
7. *Net worth divided by current liabilities.* The ratio has value in diagnosing for insufficient capital. From a credit viewpoint a customer with a large net worth and small current liabilities is preferable to one with less net worth and larger current liabilities.
8. *Sales divided by fixed assets.* This ratio has value in diagnosing insufficient sales, or conversely, overinvestment in fixed asset. The larger the sales in comparison with the fixed assets, the greater is the saving in the use of fixed capital.

STANDARD RATIOS IN STATEMENT ANALYSIS

The chief function of the various kinds of statement and report analysis in business is the development of measures of accomplishment in the form of various percentages, ratios, and turnover, and the marshaling of data so as to show their significance. In order to use such measures intelligently, the executive must have performance standards for each of the activities measured. Comparison of the measure with the standard indicates the degree to which the actual accomplishment approaches the planned or standard. Investigation to determine the causes of variations between actual and standard, and the making of plans to correct the failures are the advantages accruing from the use of such indexes of efficiency. Some of the more obvious standards used in establishing general functional efficiency indexes are given by Kester, in "Principles of Accounting," as shown below.

Among the types of standards for *buying* are the following:

1. Standard ratio for cost of goods sold to net sales.
2. Standard ratio for average inventory to total current assets.
3. Standard rate for merchandise turnover.

In *manufacturing* the following types of standards are often used:

1. Standard percentage for raw materials used to total cost of manufacturing.
2. Standard percentage for direct labor used to total cost of manufacturing.
3. Standard percentage for factory overhead used to total cost of manufacture.
4. Standard cost per unit of product.

Standards for *controlling the sales activities* include:

1. Volume of expected sales expressed in terms of value and of quantities.
2. Standard rate for merchandise turnover.
3. Standard ratio for each selling expense item to net sales.
4. Standard ratio for each selling expense item to total selling expenses.

Standards for use in connection with the *financial activities* include:

1. Standard ratio of expense of treasurer's office to net sales.
2. Standard ratio of credit and collection expense to net sales.
3. Standard ratio of net sales to receivables.
4. Standard ratio of bad debts to net sales.
5. Standard for current ratio.
6. Standard rate for working capital turnover.
7. Standard rate for total liabilities to total assets.
8. Standard rate for fixed liabilities to plant and equipment.
9. Standard rate for percentage return on investment.
10. Standard rate for purchase discount to net purchases.

For use in developing indexes of *efficiency of general administration,* the following standards are used:

1. Standard earnings per share of common.
2. Standard ratio for net profits to capital stock.
3. Standard ratio for net profits to net sales.
4. Standard ratio for net profits to average net worth.
5. Standard ratio for surplus to net worth.

APPLICATION OF FUNDS STATEMENT

Definition.—The application of funds statement, used by the United States Steel Corporation and other representative companies in the annual reports to stockholders, is a means of sum-

Application of Funds Statement Analyzing Balance Sheet Changes

THE A B COMPANY
Statement of Funds Provided and Applied
(Showing sources of free funds made available during the year and their disposition)
Year Ended December 31, 193–

Funds provided:			
By earnings:			
Net income		$ 70,150	
(Add back charges not affecting funds provided by earnings)			
Depreciation	$22,000		
Accumulation of bond discount	2,750	24,750	$ 94,900
By sale of furniture and fixtures			15,000
By issue of capital stock			300,000
By net decrease in working capital (per schedule)			45,100
Total			$ 455,000
Funds applied:			
To purchases of furniture and fixtures		$ 230,000	
To additions to buildings		150,000	$ 380,000
To payment of dividends			75,000
			$ 455,000

SCHEDULE OF WORKING CAPITAL

(Showing changes and accounting for net decrease)

	Last Year	This Year	Changes in Working Capital Increase	Changes in Working Capital Decrease
Current Assets:				
Cash	$ 42,000	$ 22,000		$ 20,000
Notes Receivable	160,000	140,000		20,000
Accounts Receivable (Net)	465,000	504,900	$ 39,900	
Inventories	650,000	610,000		40,000
Prepayments	30,000	25,000		5,000
Total current assets	$1,347,000	$1,301,900		
Current Liabilities:				
Notes Payable	$ 140,000	$ 120,000	20,000	
Accounts Payable	350,000	370,000		20,000
Total current liabilities	$ 490,000	$ 490,000		
Working Capital (excess of current assets over current liabilities)	$ 857,000	$ 811,900		
Net decrease of working capital			*45,100*	
			$105,000	$105,000

(Adapted from Finney, "Principles of Accounting," Vol. I)

marizing changes in financial condition as the result of operations over a given period. It is sometimes called a "statement of sources and application of funds," "summary of balance sheet changes," "summary of financial operations," and by other names. Roughly, increases in liabilities and proprietorship indicate sources of funds, and decreases, applications; while increases in assets represent applications of funds, and decreases, sources.

Form of the Statement.—The application of funds statement may be prepared in several forms. A form which accounts for balance sheet changes rather than merely summarizing them is given on the preceding page. Sources of funds as used in such statements may be listed as follows:

1. Earnings. The amount of funds provided by earnings is obtained by adding to the net income figure charges made against earnings not requiring current expenditures, such as depreciation and amortization.
2. Sales of capital stock, sales of bonds and other long-term borrowings.
3. Sales of fixed assets or securities held as investments.
4. Any other sources of funds, such as extraordinary income not included in the net income figure.
5. Decrease in working capital.

Funds are applied to:

1. Distributions to the owners (cash dividends or withdrawals).
2. Retirement of capital stock, bonds, and reduction of other fixed liabilities
3. Additions to fixed assets and outside investments
4. Increase in working capital

ACCOUNTING DEPARTMENT ORGANIZATION

The activities of this division are under the direction of the controller. He may have three assistants: a chief accountant, an auditor, and an office manager.

The Chief Accountant.—The chief accountant collects and correlates all facts concerning the transactions carried on by the operating division of the business. He devises the accounting systems necessary for the proper record so that the controller

may be enabled to give the information to the operating executives necessary for adequate supervision of their activities.

The work of record-making assigned to the chief accountant, is divided among his assistants according to the division of the activities of the business. All information relating to sales is collected by one group of assistants who prepare the sales invoice, record it in the sales journal, and analyze it according to the desired classification. The sales returns and allowances are similarly treated.

All data concerning purchases and the storing of the product are collected by a second group. All purchase invoices and credit memorandums are analyzed and recorded in the purchase journal after they have been properly audited and checked against the merchandise. A careful summarized record of commodities stored is also kept by this group and serves as a check against the record maintained by the stores manager.

The determination of manufacturing costs and the recording of this class of activities are the work of a third group. All material requisitions received from the stores manager, all labor cost tickets prepared by the manufacturing division to determine the labor element in cost, and all reports concerning overhead expenses are brought together by the group so as to show the total manufacturing costs. For this purpose, all books of original entry in which such costs are recorded are maintained here.

All information concerning the amount to be paid to employees is received from the personnel division and handled by a fourth group. This information is used as a means of preparing and analyzing the payroll. Upon completion, the payroll or a copy thereof is sent to the paymaster of the finance division for payment.

The recording of all data relating to the finances of the business is done by a fifth group. A record of cash received and disbursed is received by the latter from the finance division and used as a basis for the entries in the cash receipts and disbursements journals. The maintenance of a record of all investment securities, promissory notes, and acceptances, issued or received, is also part of the work of the group.

In addition the fifth group maintains the customers and creditors ledgers. All data in the books of original entry affect-

ing the customers ledger are posted thereto. The status of each customer's account is reported by the group to the credit and collection section of the finance division at definite intervals and upon request. The amounts relating to purchases and purchase returns and allowances are transferred from their respective journals to the creditors ledger which provides the finance division with the necessary information for the payment of obligations.

A sixth group takes care of the general ledger in which an accurate record is kept of all asset, liability, and proprietorship items, both vested and temporary. It also maintains the stock certificate and subscription ledgers, journals, and other records if these are maintained at the company's offices.

A seventh group of assistants to the chief accountant prepares the balance sheet, the profit and loss statement, and all supplementary reports. Similar intermediate reports in which actual results are compared with budget estimates are also prepared by this group.

The Auditor.—The second assistant to the controller is the auditor who, with his staff of assistants, verifies the accuracy and propriety of the information sent for record to the accounting division by the operating directors of the business. All sales invoices are audited as to the correctness of the quantities, extensions, and amount. All purchase invoices are compared with purchase orders and receiving reports as to quantity, price, extensions, and amount, and are scrutinized for the approval of an officer of the purchasing division. Labor and material cost tickets, and manufacturing cost sheets are also audited for their accuracy and for the purpose of ascertaining whether these costs are in accord with estimates. Attendance records of employees received from the personnel division are compared with the performance records which, in the case of the factory workers, are the labor cost tickets that are received from the manufacturing division. The rates of pay are verified against the employees' contracts.

The Office Manager.—The third assistant, the office manager, is in charge of the correspondence section which furnishes stenographers and typists to all the divisions of the business and attends to the outgoing and incoming mail.

Other Accounting Assistants.—If the controller finds his duties of analyzing and interpreting accounting reports too burdensome, he may divide his work among additional assistants in accordance with the main divisions of the business activities.

CHART OF ACCOUNTS

A chart of accounts is a list or schedule of account titles to be used in a business, grouped or classified in accordance with a classification adapted to the particular needs of the business. The accounting system should be developed in accordance with the lines of internal organization so that information can be gathered in terms of individual and group responsibilities. This is particularly true in the case of budgetary control.

The account titles chosen should be suggestive of their basic classification. In large organizations requiring a minutely detailed classification of accounts, the accounts are numbered as well as named. Various schemes and symbols have been developed for this purpose, including the numeric system, the mnemonic system, and a combination of the two. The mnemonic system has been devised for the purpose of supplying symbols, consisting of a combination of letters and figures, which would suggest the names of the accounts and thus aid one in recalling the names.

Following is a numeric chart of accounts from Kester's "Principles of Accounting":

1 ASSET ACCOUNTS
- 11 Current Assets
  - 111 Cash in Bank
    - 1111 Local Bank
    - 1112 New York Bank
    - 1113 Chicago Bank
  - 112 Petty Cash Fund
  - 113 Notes Receivable
  - 114 Accounts Receivable
  - *114V Reserve for Doubtful Accounts
  - 115 Merchandise
    - 1151 Inventories Raw Materials
    - 1152 Inventory Goods in Process
    - 1153 Inventory Finished Parts
    - 1154 Inventory Finished Goods
    - 1155
    - 1156

* The "V" suffix indicates a valuation reserve applicable to the like numbered account.

116 Temporary Investments
116V Reserve for Market Fluctuations
117 Accrued Income
118 Prepaid Expenses
119

12 Permanent Investments

121 Bonds
122 Preferred Stocks
123 Common Stocks
124 Leases
125 Real Estate

13 Fixed Assets

131 Land
1311 Used and Useful in Operation
13111 Details in Subsidiary Books
1312 Held for Speculative or Investment Purposes
13121 Details in Subsidiary Books
132 Buildings
132V Depreciation Reserve Buildings
133 Machinery
133V Depreciation Reserve Machinery
134 Tools
135 Patterns
135V Depreciation Reserve Patterns
136 Furniture and Fixtures
136V Depreciation Reserve Furniture and Fixtures
137 Etc.
138
139

14 Intangible Assets

141 Goodwill
142 Patents
143 Trade-Marks
144 Franchises

15 Other Assets

151 Organization Expense
152 Advertising Deferred
153 Bond Discounts

2 LIABILITY ACCOUNTS

21 Current Liabilities

211 Notes Payable
2111 Notes Payable Banks
2112 Notes Payable Trade Creditors
212 Accounts Payable
213 Accrued Expenses
214 Deferred Income

22 Fixed Liabilities

221 Bonds Payable

23 Other Liabilities

3 VESTED PROPRIETORSHIP ACCOUNTS

31 CAPITAL STOCK
- 311 Preferred Stock—Cumulative
- 312 Preferred Stock—Non-Cumulative
- 313 Common Stock—Class A
- 314 Common Stock—Class B
- 315 Capital Stock Subscriptions

32 SURPLUS
- 321 Capital Surplus
  - 3211 Premium on Stock
  - 3222 Re-appraisal Surplus
- 322 Appropriated Surplus
  - 3221 Reserve for Sinking Fund
  - 3222 Reserve for Contingencies
  - 3223 Reserve for Pension Fund
- 323 Unappropriated Surplus
  - 3231 Undivided Profits
  - 3232 Earned Surplus

4 SUMMARY AND CLEARING ACCOUNTS

41 PROFIT AND LOSS

42 COST OF GOODS SOLD

43 MANUFACTURING

5 INCOME ACCOUNTS

51 SALES
- 511 Merchandise
  - 5112 By Departments, etc.
- 512 Consignments
  - 5121 Details in Subsidiary Records

52 FINANCIAL MANAGEMENT INCOME

53 OTHER INCOME

6 EXPENSE ACCOUNTS

61 MANUFACTURING
- 611 Wages
- 612 Raw Materials
- 613 Freight on Raw Materials
- 614 Manufacturing Expenses

62 SELLING EXPENSES
- 621 Salaries
  - 6211 Details in Subsidiary Records
- 622 Traveling Expenses
- 623 Commissions
- 624 Advertising
- 625 General Selling

63 ADMINISTRATIVE EXPENSES

64 GENERAL EXPENSES

65 FINANCIAL MANAGEMENT EXPENSES

66 OTHER EXPENSE

PRINCIPAL TYPES OF ACCOUNTS

Fundamental Classification.—The principal types of accounts correspond to the underlying divisions of the two main financial statements—the balance sheet and the income statement. The balance sheet yields three main groups:

1. Asset accounts
2. Liability accounts
3. Proprietary accounts

There are also three groups of income statement accounts:

1. Revenue accounts
2. Cost and expense
3. Income accounts

Asset Accounts.—Asset accounts are classified into main groups—fixed and current. The fixed group is in turn subdivided into two classes—tangible and intangible. The following is a general classification of the fixed tangible group:

1. Land
2. Buildings
3. Machinery
4. Furniture and fixtures
5. Delivery equipment
6. Tools
7. Patterns, drawings, electrotypes, etc.
8. Deferred charges

The fixed intangible group includes the following:

1. Goodwill
2. Patents
3. Trade-marks and trade names
4. Copyrights
5. Formulae
6. Franchises

The current assets have the following general classification:

1. Cash
2. Receivables
3. Inventory
4. Temporary investments
5. Accruals
6. Prepayments

Liability Accounts.—This group may be classified into fixed and current liabilities. The fixed class consists of long-term indebtedness, principal examples of which are bonds, mortgages, and long-term notes. Principal examples of current liabilities, which are usually defined as those with a maturity of less than a year, are accounts and notes payable, accrued liabilities, such as accrued salaries, rent, and taxes, and deferred credits or prepaid income, such as rent, premiums, etc., received in advance.

Proprietary Accounts.—In the case of the single-proprietorship two accounts usually take care of his investment in the business—the capital account to represent his initial or more or less permanent investment and the drawing account for recording drawings, income (or loss) balances, and other special adjustments. Two similar accounts are carried for each partner in the case of a partnership. The two principal proprietary accounts in a corporation are the capital stock and surplus. The capital stock account may, however, be subdivided into several accounts, depending upon the number of classes of issued stock, while instead of one surplus account, there may be a number representing surplus derived from different sources or surplus appropriated for the time being for various purposes.

Income Statement Accounts.—Revenue accounts, the first of this group, embrace those in which income from the principal activities are recorded. Thus in a manufacturing or mercantile concern it is the receipts from sales of the product or stock-in-trade. In the case of an electric company, it is the sale of electricity. Cost and expense accounts record all the costs and expenses incurred in operations, that is, in producing the main revenues. Income accounts represent miscellaneous income and outgo, which are not incidental to the principal operations of the business, such as interest or rent received or paid.

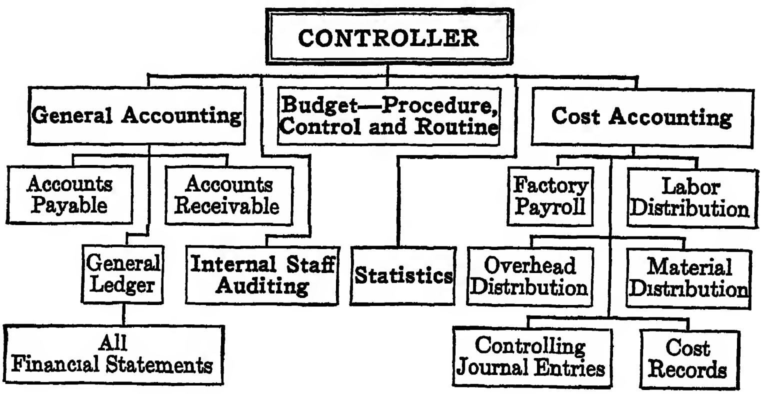
FUNCTIONS OF THE INDUSTRIAL CONTROLLER

A summary of the functions of the controller is given by the Policyholders Service Bureau of the Metropolitan Life Insurance Co. ("Business Organizations") as follows:

1. He is responsible for the devising, installation, and maintenance of the accounting system.
2. The general books are under his direct control.
3. He has jurisdiction over accounts receivable and all that entails.
4. He has jurisdiction over accounts payable and all that entails.
5. He is responsible for payroll accounting, auditing of all employees' time records, and keeping of all payroll ledgers showing the earnings and deductions by departments and individuals.
6. He has under his jurisdiction accounting records of stocks and supplies, whether merchandise, raw, semi-finished, or finished.

7. He is responsible for the taking of inventories.
8. He has wide auditing powers over sales, purchases, disbursements, and property of every description.
9. Where his functions are logically carried out, he maintains a check over the treasurer's cash receipts, disbursements, and bank balances.
10. In a manufacturing company he has charge of the cost accounting; and in the merchandise undertaking, he is responsible for the expense distribution.
11. He has the custody of books and the administration of a large force of accountants, mail clerks, stenographers, filing clerks, etc.
12. He is responsible for the preparation of detailed statements of income, operation, disbursements, accounts, and liabilities, and
13. Closely connected therewith is the preparation, analysis, and interpretation of statistical information covering all the operations of a business which should be called to the attention of the president, or manager, or board of directors of the business.
14. As the budget has been increasingly applied to modern business, the operation of such budgets frequently rests with the controller.

The chart below illustrates one form of organization of the controller's department.



MACHINE ACCOUNTING METHODS

In larger organizations where certain routine accounting work is voluminous, partly because of the size of the organization and partly because of the detailed character of the work, speed, ac-

curacy, and economy can be effected by the application of machine methods to such work. Modern machine methods may, in fact, be applied to such accounting conditions with the same measure of success that similar methods have produced in the factory.

There is a great difference in efficiency among the various accounting machines, some being better adapted for certain purposes, and others for other purposes. In a great measure the success of applying accounting mechanical methods will depend upon the proper selection and proper application of a machine to a particular accounting condition. In such selection and application a knowledge of the fundamental characteristics of the various types of machine accounting equipment is essential.

Classification of Machines.—The following is a classification of these accounting machines, based on their fundamental characteristics, as given in "Accounting by Machine Methods," by Schnackel and Lang:

1. Descriptive writing equipment:
    (a) Flat-writing platen and arithmetical features
    (b) Cylindrical-writing platen and arithmetical features
2. Printing equipment:
    (a) Flat-printing platen and arithmetical features
    (b) Cylindrical-printing platen and arithmetical features
3. Tabulating and Recording Equipment:
    (a) Punch card method
    (b) Ticket Method

Descriptive Writing Equipment.—This class of machines is applied to work of descriptive writing as in order writing and billing. The two types of machines of this class differ from each other in that the writing surface or platen is flat in the one case and cylindrical in others. Each type has its particular advantages for particular applications. By means of these types of equipment it is possible to write mechanically on cut forms, bound books, and continuous-length forms. The machines have also features making possible vertical and horizontal adding and subtracting.

Printing Equipment.—Modern machines of this class are electrically driven and are designed to meet conditions in accounting and statistics that require various kinds of analysis and distribu-

tion data in the process of posting a ledger. The flat-printing platen type posts mechanically, balances ledger accounts automatically, and prints all items in clear, legible type, accumulating totals of all amounts posted. The cylindrical-printing platen type differs mechanically in that the printing surface or place is cylindrical instead of flat.

Tabulating and Recording Equipment.—An analysis of voluminous facts can readily be made from any desired viewpoint with the aid of these electrically driven tabulating and recording machines. They are adaptable to all kinds of analysis or distribution work, such as sales analysis, payroll, cost or expense distribution, purchase analysis, distribution of remittances received, and so on.

There are two distinctive types of this class of machines—the punch card and ticket type. In the punch card method of tabulation the process consists of three steps:

1. Punching a card with circular holes, the meaning of which depends entirely upon their position on the card.
2. Sorting the punched cards according to the data perforations.
3. Summarizing the information thus sorted under any desirable number of headings.

Machines of the ticket producing type automatically issue tickets on all operations, on any class of applications, or whenever desired. The ticket may be prepared with or without stub, as the operator chooses. The information printed on both parts of the ticket includes the date, serial number, identifying numbers, symbols for the totals used, and the amount. The ticket may be used as a voucher, pay ticket, requisition, posting medium, for filing purposes, and in many other ways.

PUBLIC ACCOUNTING SERVICES

The American Society of Certified Public Accountants and various state societies have indorsed in principle a classification of accountancy services, the principal divisions of which are as follows:

1. Examination of financial condition and detailed audit of transactions for a period. Short title—detailed audit.
2. Examination of financial condition and audit tests of transactions for a period. Short title—test audit.

3. Examination of financial condition and review of operations.
4. Examination of financial condition.
5 Audits of specific accounts.
6. Other services.

The first two types of services apparently differ only in the degree of thoroughness with which the transactions are verified. In the third and fourth types the auditor undertakes to substantiate the representations made in respect to the organization under examination, with a view to determining that there is no overstatement of net assets or of net profits, and that the net assets and net profits are at least as good as represented. Such services are not designed to detect lapses of fiduciary integrity or any understatement of assets which may have been concealed in the operating accounts. The fifth division covers either a detailed or test audit of some specific account or group of accounts. The sixth division contains various activities which are considered to fall within the field of the public accountant. Among the services mentioned under this heading are: tax services, system services, budgetary services, opinions, and specific investigations.

BRANCH OFFICE ACCOUNTING

Varying Systems of Accounting.—Branches vary in procedure from agencies which transfer all data to the central office for entry on the latter's books to branches possessing much independence. If a branch keeps its own books, it may or may not be desirable to set up the branch profit and loss account on the branch books. If it is desirable, goods should be billed to the branch at cost, so that the branch manager may be able to ascertain the cost of goods sold during the accounting period and determine the branch profit or loss. If it is not deemed advisable to permit the branch manager to determine the branch profit or loss, goods should be billed to the branch at a fictitious price. This is usually a markup on cost, say 130% or 150% of cost. The home office can at any time translate these fictitious prices back to cost. Even though goods are billed to the branch at a price other than cost, or one which the branch manager does not know to be cost, a branch profit and loss account may be set up, the results being used only for managerial purposes.

The Current Account.—When a branch profit and loss account is set up on the branch books, the balance of net profit is credited to the Home Office Current account carried on the branch books. On the home office books it is charged to the Branch Office Current account and credited to Branch Profit and Loss. When a branch profit and loss account is set up on the home office books, income and expense accounts on the branch office books are closed into the Home Office Current account. On the home office books corresponding entries are made and the true cost of goods sold is brought in. By either method, after closing, the balance in the Home Office Current account on the branch books must agree with the balance in the Branch Office Current account on the house office books. In practice, however, the two inter-office accounts may not be in agreement before closing due to some item which is in transit and which has been brought upon the books of the sender only, or to an adjustment due to be made on both home office and branch books, but as yet made on one set of books only. The accounts must then be reconciled and the procedure is the same as in the reconciliation of a bank account.

FOREIGN BRANCHES—CONVERSION OF FOREIGN VALUES

Normal Exchange Market.—In consolidating the trial balance of a foreign branch with the accounts of the head office, it is first necessary to convert into domestic currency values the foreign currency values in which the asset, liability, expense, and income items are carried on the books of the branch. The root of this conversion problem lies in the determination of the proper rate or rates of conversion. Under normal conditions in the foreign exchange market, and when absolute accuracy is not required, it is sufficient to use for converting all items a uniform rate of exchange in the neighborhood of par, or one representing an average.

Abnormal Exchange Conditions.—However, in periods of rapidly fluctuating rates of exchange, or in transactions with branches where silver currency or depreciated paper are used, the conversion of the items of the foreign branch trial balance at some arbitrary or average rate will not give satisfactory results. Different rates must be used in the conversion of different items.

Under those conditions fixed assets are converted at the rates prevailing at the time of their purchase if the transactions have been few. If, however, they have been numerous, an average rate may be taken, as that found by taking the actual rates at the end of each month throughout the year and dividing their total by twelve. If construction expenditures have varied greatly from month to month, a weighted average rate of conversion will give better results. The depreciation reserve will be converted at the same rate as the fixed assets. The reserve may, however, be based on the dollar valuation of these assets, or only their net book value in the foreign currency (cost less depreciation) may be converted into dollars Non-current liabilities should be converted at the rates prevailing on the dates when they were incurred.

Current assets and liabilities are converted at the rates ruling on the date of the balance sheet. The same conversion basis is applied to the reserve for bad debts. Income and expense items are convertible at the average rate for the period because they represent transactions which took place throughout the period. The opening inventory is converted at the rate current at the beginning of the current period. The final inventory of goods purchased from the home office may be converted at the average rate for the period, and when thus reconverted to its original dollar cost, it is valued in accordance with the rule of "cost or market, whichever is lower."

The Remittance account, in which are entered the remittances made by the branch to the head office, is converted at the actual rates paid for the drafts. The Control or Adjustment account on the branch's books, representing the ownership of the branch by the head office, is converted at the actual rates at which the various transactions recorded in it took place. In the case of a foreign subsidiary corporation the capital stock account is converted at the rate ruling at the time of the subsidiary's formation or acquisition. If the subsidiary has been purchased, the balance of surplus at the date of acquisition should be converted at the same rate as the capital stock. The conversion of subsequently earned surplus will be determined on the basis of the average rates used at the end of the successive periods for converting current income.

Reserve for Fluctuations in Exchange.—The foreign branch trial balance is in balance prior to the conversion but is almost

invariably out of balance after conversion, due to the different rates used in converting the various items. The amount of the disparity is set up by means of a debit or a credit to an account called "Exchange," "Fluctuations in Exchange," or "Reserve for Fluctuations in Exchange."

Oftentimes, particularly when exchange rates are unstable, it is desirable to create a reserve out of profits against which any abnormal future losses from exchange fluctuations may be charged. This is done for the purpose of guarding against the possibility of overstating values and paying dividends out of capital, since the conversion into head office currency merely serves as a medium of estimating what the foreign investment really represents to the stockholders.

In making conversions, either the demand or cable rate of exchange may be used, provided that the same rate is adhered to from period to period.

PLANT LEDGER—FUNCTION AND FORM

Description.—The plant ledger is the detailed record for items of building and equipment. It aims to do for plant and equipment what the perpetual inventory system does for stock on hand. It ties up with the general books of accounts, and supplies the details of cost of property, the rate of depreciation, additions and improvements, renewals and retirements, amounts in depreciation

Plant Ledger Sheet

ITEM *Engine* MANUFACTURER *Brighton Engine Co.* USEFUL LIFE ~~*15*~~ *Years*
DEPT. *Trimming* MFRS. NO. *B-93217* *as of 1/1/34* *12 Years*
PLANT NO. *S.E.-T-1799* PURCHASED FROM *Evans and Clark Order No. 3906*

DATE		DESCRIPTION —— REMARKS	REF.	TOTAL COST		SCRAP VALUE		WEARING VALUE		ANNUAL DEPRECIATION		IN DEPRECIATION RESERVE		REMAINING VALUE	
1928 Jan.	1	50 H.P. Engine Invoice	V 731	2,500	—										
		Freight	V.729	15	—										
		Installation	V 741	185	—	150	—	2,550	—	170	—	170	—	2,380	—
1929				2,700	—					170	—	340	—	2,210	—
1930										170	—	510	—	2,040	—
Oct.	9	Lubricator installed	V.791	150	—			150	—					150	—
1931				2,850	—			2,700	—	182	50	692	50	2,190 2,007	50
1932										182	50	875	—	1,825	—
July	12	Piston replaced	V.907									300	—	300	—
1933										177	08	575 752	— 08	2,125 1,947	92
1934 Jan.	10	Engine sold-$2000. loss $97.92													

reserves, estimated scrap value, and net book value. The ledger should also contain a description of each item or unit, when located, the name of the manufacturer, if machinery, and the factory number, when purchased, and any other historical data which may prove useful at some future time.

Form.—A convenient form of plant or property ledger the card or loose-leaf form, one card or leaf for each item or unit of property. Each card or leaf should be ruled to last twenty years or more. The following form illustrates a plant ledger recommended by the Chamber of Commerce of the United States.

REPLACEMENTS AND RETIREMENTS OF FIXED ASSETS

These are relatively large expenditures made to replace worn-out or retired fixed assets or parts with new assets or parts, and their proper treatment in the accounts is dealt with by the Interstate Commerce Commission as applied to railroads as follows:

". . . upon the retirement of a unit of depreciable property whether or not the cause of the retirement is a recognized factor in depreciation, . . . the service value shall be charged in its entirety to the depreciation reserve

"Provided, That if the cause of retirement is not a recognized factor in depreciation but is a cause against which the carrier is insured, the depreciation reserve shall be credited with the full amount of insurance recovered; and

"Provided further, That if the cause of retirement is not a recognized factor in depreciation and the loss is not covered by insurance, the carrier may, upon proof that the charge to the depreciation reserve will result in undue depletion thereof and with the approval of the Commission, charge the service value to an appropriate suspense account and distribute it from that account over such period of years and to such accounts as the Commission may approve."

Losses on retirements, arising when the original costs of the retirements exceed the accumulated depreciation allowed on them up to the time of retirement should not be capitalized but should be charged against surplus, especially when the losses are large; or in some cases they may be carried as deferred charges to be

written off in the next few years. Where comparatively small the losses may be charged against operations. There must also be considered the question of removal and installation expenses, and the salvage value of any property retired.

ADDITIONS AND BETTERMENTS TO FIXED ASSETS

These two terms refer to increases of investment in the fixed property account of a business concern, and the chief problem they give rise to is to determine whether a given expenditure should be capitalized as either an addition or a betterment, or whether it had better be charged to revenue as current expense.

Additions.—Additions are structures, facilities, and other properties added to those in service, and not taking the place of any of like purpose. The expenditures for them are included in the property account, and are recovered in the usual way, through the application of depreciation charges.

Betterments and Improvements.—Betterments or improvements are defined by the Interstate Commerce Commission as follows:

"Betterments are physical changes in structure, facilities, or equipment which have as their primary end or result the making of the properties affected more useful or of greater capacity than they were at the time of their installation or acquisition. Of the changes incident to betterments the cost of such portion only as will when added to the original cost of the property bettered, give the cost of reconstruction in present condition or property as bettered, should be charged as plant and equipment investment."

Care must be taken to make proper deductions from the property account for all property items superseded by the betterment. Consideration must also be given to questions of removal and installation expenses, and the salvage value of any property retired.

DEPRECIATION AND OBSOLESCENCE OF FIXED ASSETS

Fixed Assets Defined.—Tangible fixed assets are those which are not sold in the usual and ordinary course of business, but constitute the general physical equipment with which the business

conducts its operations. A general classification of these fixed property investments in the case of a manufacturing concern is as follows:

1. Land
2. Buildings
3. Machinery and other equipment
4. Tools, patterns, dies, etc.
5. Furniture and fixtures
6. Delivery equipment

Land and Depreciation.—From the viewpoint of depreciation these property investments are to be distinguished into two classes: first, the land site, the service value of which is of indefinite length; second, buildings and the other property investment, whose useful life is limited by wear and tear, whether in production or by the elements, or because of inadequacy or obsolescence, due to improvements in the arts or changes in demand for the product which forces the management to scrap the equipment precisely as though it were physically worn out.

Because land has an indefinite useful value and will not have to be replaced, it is unnecessary to recover the investment it represents through sales of the product, by gradually depreciating it and adding the depreciation installments to the cost of product. In short, land is not subject to depreciation in any accounting sense.

Depreciation of Buildings and Equipment.—On the other hand, the investment value of buildings and other equipment, which will sooner or later have to be replaced, must be recovered in operations if the business is to remain a solvent, going concern. These fixed assets are accordingly depreciated, their investment value passing gradually through the depreciation account into the cost of inventory or the cost of service, depending upon the nature of the industry, the sale of which brings about the recovery of the original fixed investment.

The rate at which the depreciation of fixed assets should be charged against operations has an important bearing on the determination of periodical income. The usual basis of distributing depreciation over the product manufactured is known as the straight line method. From the original fixed investment its

estimated salvage value, when it is finally discarded, is subtracted, and the difference is divided by the estimated number of years constituting its useful life. This establishes a uniform, annual rate of depreciation, which, however, is subject to adjustment with changing conditions as they will affect the life of the asset.

Methods of Depreciation.—Among the other less commonly used bases for allocating fixed investment depreciation to cost of product are the following:

WORKING HOURS METHOD.—Under this method the rate of depreciation is based on the number of working hours within the life of the asset rather than on the number of years within that life.

SERVICE OUTPUT METHOD.—By this method an attempt is made to predetermine the output of the fixed asset in terms of units of product and distribute depreciation over the life of the asset periodically according to the number of units of product.

DIMINISHING VALUE METHOD.—A fixed percentage of the diminishing net book value of the fixed assets is taken as the depreciation rate. The annual amount of depreciation progressively decreases.

COMPOUND INTEREST METHOD.—This method is based on the compound interest principle, and the amount annually depreciated increases.

PERCENTAGE OF GROSS EARNINGS METHOD.—By this method depreciation is measured as a percentage of the period's gross earnings. If the principal element of depreciation is wear and tear, output may have a very direct relation to gross earnings.

DIFFERENT CLASSES OF RESERVES

Reserves are of three classes: (1) current liability; (2) a valuation account; and (3) an appropriation of surplus for a particular purpose. The "reserve" account as frequently shown on balance sheets may represent any one or more of these classes. Following is an explanation of each class:

1. The so-called reserve accounts, which are in fact liabilities, such as Reserve for Taxes, Reserve for Accrued Wages, etc., are grouped under current liabilities. Such accounts are commonly referred to as reserves, but to be more accurate should be labeled Accrued Taxes, Accrued Wages, etc.
2. Valuation reserves are not liabilities, but are in the nature of deductions from assets appearing on the balance sheet. The Reserve for Depreciation is an illustration. This account is created by debiting "depreciation" account—an operating expense—and crediting a Reserve for Depreciation account. On the balance sheet the Reserve for Depreciation is shown as a deduction from the asset to which it relates in order to measure the decline in value. Similar reserves may be provided for inventories (referred to as Reserve for Inventories) and for accounts receivable (referred to as Reserve for Doubtful Accounts). Other illustrations are Reserve for Freight Allowances and Reserve for Discounts.
3. True reserves are merely appropriations of surplus made to indicate that the amount so appropriated is retained in the business for some reason and therefore is not available for paying dividends. On the balance sheet true reserves are separated from that portion of surplus which is unappropriated and listed under the general heading of net worth Illustrations are Reserves for Contingencies, Sinking Fund Reserves, etc.

DEPLETION CHARGE FOR WASTING ASSETS

Wasting Assets Defined.—Wasting assets comprise such natural resources as mines, stone quarries, sand pits, oil lands, timber land, which are subject to depletion. They differ from depreciating assets in that they are worked and "give out," whereas depreciating assets wear out through use or the effect of age. When a wasting asset has been exploited, its supply is definitely and finally diminished, and cannot be replaced, as a depreciating building or machine can, unless another natural resource of the same kind can be purchased in the neighborhood.

Depletion Charge.—The investment in a wasting asset is subject to a depletion charge, usually made to a depletion reserve which resembles the depreciation reserve. The dollar amount of the depletion charge for a period is reckoned by comparing the quantity of product extracted during that period with the total

estimated quantity owned. The same proportion is then taken of the value of the wasting asset in determining the amount of the depletion charge for the period. Suppose, for example, that a coal mine is purchased for $110,000, and it is estimated that the value of the surface land after the exhaustion of the mine will be $10,000 so that the net cost of the coal deposits is $100,000. If estimates place the amount of recoverable coal at 400,000 tons, then for each ton mined during the fiscal period $.25 should be credited to the depletion reserve or allowance, as the cost value of the mine is reduced by that amount with each ton extracted. The charge is made to operations, and as it is included in the cost of mining the coal and is recovered through the sale of the coal, the integrity of the original investment in the coal mine is in this manner maintained.

The determination of the periodic amount of depletion is simple in theory, but due to certain regulations of the federal income tax law, it is in most cases highly technical and complicated.

INDUSTRIAL PLANT APPRAISALS

An appraisal consists of the process of determining the value or worth of property as modified by all the conditions, circumstances, and cases to which the property is subject.

Kinds of Appraisals.—The majority of appraisals may be divided into three classes:

1. Real estate appraisals
2. Public utility appraisals
3. Industrial or plant appraisals

Real estate appraisals include all cases of estimating the values of land, buildings, and leaseholds for the purpose of obtaining a "fair cash market" value for such property. Public utility appraisals include all valuations of the assets of such regulated businesses as railroads, gas, electric and water utilities. Their purpose is frequently to determine the rate base, or the amount on which the company is entitled to a certain rate of return.

Industrial or Plant Appraisals.—These comprise all valuations of the fixed tangible assets of mills, factories, and other properties. Their usual purpose is to determine the service or

"sound" value of the plant and equipment, or the cost of reproduction new less accrued depreciation. In retroactive appraisals the costs of reproduction as of some specific date in the past are used in the valuation of property as of that date. The majority of retroactive appraisals have been made for income tax purposes, in endeavoring to establish March 1, 1913, or other basic value. Most of the plant appraisals are current appraisals, in which present market costs of construction are applied to the property items. Appraisals that are periodically tested and revised are called continuous appraisals.

Appraisals of plant properties are made for numerous purposes, of which the most important are the following:

1. Purchase and sale of the plant
2. Financing by means of bond issues secured by the plant
3. Reorganizations, liquidation, etc., in order to determine the equities of the various interests involved
4. Taxation—particularly property, income, and inheritance
5. Insurance—to establish proof of loss in case of fire
6. Management—to furnish data for analysis of various administrative problems

DEVALUATION OF PLANT ASSETS

Reason for Plant Asset Adjustment.—When the general level of commodity prices has suffered a drastic decline, as was witnessed in 1931 and 1932, and has become stabilized at the lower level, the management of a company may feel that its property account is carried at excessive book valuations and that the depreciation charges based on such high values add to heavily to production costs and prevent profits. To place itself in a better competitive position, especially with reference to concerns who have entered the field more recently with plants acquired at lower costs, or simply to enable itself to continue paying dividends, a concern in such a situation may decide to write off a certain proportion of the property account, reduce the depreciation charges accordingly, and market its product at a profit. The decision is made simply on the grounds of financial expediency and the profits henceforth made are not profits on the company's investment, represented by an actual outlay of funds, but simply on the investment subjected to this arbitrary reduction.

Kinds of Property Revalued.—The types of properties thus revalued downward are as follows:

1. Property which has been previously written up with or without an independent appraisal.
2. Individual property units which no longer serve their original purpose because of the permanent reduction in company's scale of operations.
3. Obsolete assets, the continued use of which in view of the improved methods of manufacture would prove more of a handicap than an advantage
4. A plant which is only partly utilized because of the diminished scale of production and which therefore represents excessive investment.
5. The general plant account, in order to improve the company's earnings position through diminished depreciation charges

Accounting for Capital Asset Readjustments.—The logical charge for plant devaluation is to surplus account. When there is surplus for unrealized appreciation, this should be charged. When values representing actual outlay of funds are reduced, the legitimate charge is to earned surplus, and only when that is exhausted, should the charge be made to capital surplus. However, the procedure was reversed in most instances during the period of 1931-1932. When surplus is insufficient to absorb the entire amount of the write-down, it may be created through a reduction of capital stock, which requires the observance of certain legal formalities, including the consent of a certain majority of the stockholders.

FIRE LOSS ADJUSTMENTS

Requirements in Case of Fire Losses.—When a loss occurs, a written notice should at once be given to the insurance company which dispatches an adjuster to the scene of the fire. Proof of loss must be filed according to the terms of the "standard" policy, within 60 days. After proof of loss another 60 days is allowed the insurer for settlement. Should the insured and adjuster fail to agree, an appraiser may be appointed by each. The appraisers choose an umpire whose decision is final if the appraisers cannot agree; otherwise the decision of the appraisers is final and is made without reference to the umpire.

Settlement may be made

1. In cash—covering the loss in sound value of the property destroyed. This method of settlement is the one most frequently followed.
2. In cash—representing a complete purchase by the insurer of the damaged property at its "cash" value, which is generally defined as replacement value new, less depreciation.
3. By replacing or repairing the destroyed or damaged property.

Method of Record-Keeping to Facilitate Ready Adjustment.—The standard policy provides that the insurance company may require the production of original bills and vouchers in order to establish the cost of the property destroyed. Where these are not obtainable, the process of adjustment may be delayed until data on which to figure the original cost can be secured which is satisfactory both to insurance company and the insured. Accordingly, in order to secure adjustment of fire losses without delay, the record of all assets should be supported by original vouchers. Where the asset account is a group account, i e., one composed of numerous pieces of property, a subsidiary ledger or register, or inventory record as it is sometimes called, should be carried, in which appear the details of the group account. If the assets covered by the group account are only partially destroyed, it is then possible to determine the cost value of the portion destroyed by comparison with the portion left. In the case of machinery and tools, furniture and fixtures, delivery equipment, etc., the use of such a register is particularly advantageous. If the voucher system of account-keeping is in use, there will be supporting data for all charges to asset accounts and an examination of these will make it possible to determine the legitimacy of all such charges.

If ready adjustment is desired, it is necessary to make sure that the policy covering particular property makes a sufficiently definite statement of the property covered so as to indicate clearly the exact property to which the policy applies. Where policies are taken out covering new equipment as it is purchased, and at some future time the equipment is moved from building to building, the problem of allocating the policy to the property covered by it becomes particularly difficult. To surmount these difficulties, it may be wise to draw up charts and maps of all buildings and

their equipment, indicating on the insurance policies the particular pieces of property covered by them as shown on the map.

Adjusting Entries for Fire Losses.—To make the books record properly the loss suffered by fire, it is necessary to set up a special account called "Fire Loss." This account will show the full amount of the loss, including any expenses incurred in connection therewith and also the portion of the unexpired insurance premium which is canceled by the fire. To effect this the account will be credited with the amount of insurance received or allowed by the insurance company and it will be charged with the book value of all property destroyed and all expenses in connection with the fire. After the account is credited with the amount of insurance received, the balance shows the net loss suffered by the fire and will be closed directly into surplus so as not to affect the results of the current period's operations. As a rule, at the time of the loss of a fixed asset, depreciation has accrued from the close of the last fiscal period and this must be taken into consideration in making the adjustments on the books. The amount of such accrued depreciation must be charged to the current period's depreciation account because the period must bear its proper portion of the expense. The offsetting credit to such charge will be made directly to the asset account rather than to its depreciation reserve account, although there is no objection to the latter procedure. The depreciation applicable to the asset destroyed which has accumulated in the past must now be transferred as a credit to the asset account. After such transfer and entry in the asset account of the accrued depreciation, the balance of the asset account shows the book value of the asset at the time of the fire. If this book value is accepted as the true value by the insurance company, no further adjustment is needed and this becomes the figure or amount which is transferred to the Fire Loss account. If, however, settlement is made on a lesser or greater valuation usually no adjustment of values is made, the total book value of the destroyed asset being charged to Fire Loss account.

If the loss is complete or the insurance company makes a settlement of the total amount of the policy, the policy is canceled and all unexpired premiums applicable to it are used up and constitute an additional loss occasioned by fire. The portion of the premium expired during the current period up to the date of the fire is a

current expense to be closed to Profit and Loss account. The amount of the unexpired premiums is, therefore, charged to Fire Loss account. If settlement is not made for the total amount of the policy, the amount of the settlement is indorsed on the policy in order to show the amount of insurance still in force for which the company is liable. The due proportion of the unexpired premium will be charged off to Fire Loss account. This proportion will be represented by the ratio of the amount of the settlement to the face of the policy.

In the case of loss of stock-in-trade by fire, it is necessary to have available as the basis for determining the value of the merchandise destroyed the inventory record as at the close of the previous fiscal period. The record of all purchases, purchase returns, sales, and sales returns from then until the time of the fire, and the records of previous years, should also be available in order to determine the average rate of gross profit. If such rate of gross profit is not available, there must be a rate agreed upon by the insured and the company as the basis for settlement. The application of this rate to the sales made since the last closing of the books will give the estimated amount of gross profit. This amount subtracted from sales gives estimated cost of sales. Goods on hand at time of fire may be estimated with reasonable accuracy by applying the regular formula for ascertaining cost of goods sold. By some policies, however, it is the sale value and not the cost which is covered by insurance.

Insurance Register.—Where many policies are carried in the same or different companies, a columnar register is a convenient method of keeping record of expiration dates, property covered, distribution of premium, unexpired portion, etc. The columns are provided to show: date of policy, name of company, policy number, expiration date, termination, face of policy, items covered by it, premium total and its distribution by months or other fiscal periods covered by it.

THE CO-INSURANCE CLAUSE

The co-insurance clause is an agreement between the party insured and the insurance company that the former shall maintain insurance equal to 80%, 90%, or 100% (as the case may be) of the value of the property covered; failing to do so he shall bear

such portion of any loss as the insurance lacking would have paid if in force. It is variously known as "reduced rate average clause" or "reduced rate contribution clause."

A co-insurance clause forms as much a part of the rate as the actual rate figure. It assures a fair deal. It means that the man who pays premium on only that part of his risk which is more apt to burn cannot secure for that premium complete protection for his whole risk at the expense of the man who believes in complete protection and insures all.

A co-insurance clause is recognized by lower rates. The insured is paid in dollars and cents for his foresight in adequately insuring.

Policies of insurance, without co-insurance pay: either (1) the total amount of the loss, or (2) the total amount of insurance, *whichever figure is the smaller*. Add a co-insurance clause (the 80% for unity's sake) and a third limitation is introduced, viz., (3) the percentage of the loss which the insurance bears to 80% of the value at time of loss.

The policy then, pays the smallest of these three amounts: (a) the actual loss, (b) the total insurance, (c) the figure determined by this formula: amount of insurance times amount of loss divided by 80% of the value at time of loss.

The following two examples show the workings of the 80% co-insurance clause.

1. Loss and insurance equal or greater than 80% of value. Value $10,000. Loss $9,000. Insurance $8,000. The three limitations are—
   (a) Amount of loss $9,000.
   (b) Amount of insurance $8,000.
   (c) Co-insurance proportion $8,000 × $9,000 ÷ 80% of $10,000 = $9,000.

   The insurance then pays the smallest of the three, or $8,000, the total amount of insurance carried.

2. Insurance less than 80% of value, but loss equal or greater than 80%. Value $10,000. Loss $9,000. Insurance, $6,000. The three limitations are—
   (a) Amount of loss $9,000
   (b) Amount of insurance $6,000.
   (c) Co-insurance proportion $6,000 × $9,000 ÷ 80% of $10,000 = $6,750.

   The insurance then pays the smallest of the three, or $6,000, again the total amount of insurance.

BONDS—NEGOTIABILITY AND DENOMINATION

Trust Deed.—Bonds are formal obligations of corporations, running for five years or so and upwards, and represented by a certificate impressed with the corporate seal. Bonds that are offered to the public are generally issued under a contract, known variously as mortgage, trust indenture, trust deed, deed of trust, etc., between the corporation and a trustee, usually a trust company. The trustee represents the bondholders in their collective capacity, and the agreement under which the trustee is appointed is a document usually of considerable length, defining the exact rights of the bondholders, their security, etc., the duties of the trustee, and on the other hand, the covenants which the corporation has undertaken to perform in connection with the bond issue.

Negotiability and Denomination.—With respect to form, bonds are either coupon or registered bonds. The former owe their name to the fact that they have attached to them coupons, which represent claims for interest on the successive dates indicated. The collection of interest on the due dates is effected by detaching the coupons and cashing them. Coupon bonds are negotiable to bearer, passing by delivery, no record of the owner being kept by the corporation. The great bulk of coupon bonds are issued in denominations of $1,000 and less often $500 and $100. Registered bonds are bonds the names of the owners of which appear on the books of the company as well as on the face of the bond certificate. Interest on them is payable, accordingly, by check. The denominations of fully registered bonds are usually $1,000, $5,000 and $10,000. Bonds also may bear interest coupons but may be registered as to principal only.

CLASSES OF BONDS

Mortgage Bonds.—These are secured by a mortgage on certain property specified in the indenture. If the total amount authorized is exhausted by insurance, for the issue of the bonds, they are known as a closed issue. If no definite limit is set, they are called an open-end issue. If a maximum amount is fixed but it is considerably in excess of present requirements of the corporation, the bonds are referred to as a limited open-end issue.

Collateral Trust Bonds.—Those secured by the pledge of securities in other companies. Such bonds are typical of certain classes of public utility holding companies. The pledge of securities, however, may and is frequently combined in the large issues with a mortgage

Debentures.—Unsecured bonds are generally called debenture bonds. They are based simply on the general corporate credit without enjoying any special security. They may, however, be protected by a covenant in the indenture entitling them to equal security in the event a subsequent issue of bonds is put out which is secured by a mortgage.

Income Bonds.—Income bonds are issues which are entitled to interest only when earned. Their origin is commonly in reorganizations of failed concerns. The principal, however, may be secured by a mortgage or pledge of securities, or it may be unsecured. The interest may be cumulative or non-cumulative when not paid in any period.

Convertible Bonds.—These bonds are convertible, at the option of the holders, usually into stock, upon the terms specified in the indenture, which relate chiefly to the time and rate of conversion. The purpose of their issue is to combine with the security of a bond the speculative opportunity possessed by a stock.

Guaranteed Bonds.—Bonds guaranteed by another corporation, usually the parent company owning the stock of the issuing company. The guaranty is either by an indorsement in the bond, by special covenant, by lease or operating agreement. Redeemable or callable bonds are those which the corporation may pay off at its option before the set date of maturity. Usually such redemption is effected at a premium above par to compensate the bondholder for the unexpected termination of his investment.

Refunding Issues.—These are bonds which have been put out to meet maturing issues. Ordinarily they are sold for cash which is applied to the payment of the maturing bonds. At times, however, holders of the maturing bonds receive an offer from the corporation to exchange the new bonds for the old.

Sinking Fund Bonds.—This class of bonds provides for the accumulation of a fund, by annual or semi-annual payments,

against the due date of the bonds. In modern issues, however, the sinking fund is combined with the callable feature of the bond, and as soon as the periodical payment is made into the sinking fund, a number of bonds, as determined by lot, are called sufficient to exhaust the fund.

EQUIPMENT OBLIGATIONS

Equipment obligations are securities issued chiefly by railroads and traction companies on the security of newly purchased rolling stock. Since a few years before the World War, however, other enterprises having large amounts of capital tied up in movable or salable machinery and equipment have also resorted to this mode of financing.

Three Plans of Issue.—The obligations are issued under one of three plans:

1. The most common by far of these plans is what is known as the Philadelphia plan. The railroad equipment forming the security of the obligations is merely leased to the railroad until the debt is paid, title to the property remaining in a trustee.
2. The second plan is that by which only a conditional sale is made of the newly purchased equipment to the corporation, which, accordingly, does not acquire title to the equipment until the condition of payment is fulfilled.
3. The least frequently used plan is the mortgage plan, whereby the rolling stock is simply mortgaged, in the manner of the usual corporate bond.

Covenants.—Whatever plan is adopted, the usual covenants which the company undertakes are as follows:

1. To maintain the equipment in proper condition and repair, and replace that which is destroyed.
2. To insure the equipment.
3. To pay all taxes.
4. To indemnify the trustee for all claims arising out of the ownership or use of any of the property.
5. To fasten and keep on each piece of equipment a metal plate showing that the trustee is the owner.
6. To file periodically with the trustee a statement of the location and condition of the equipment.

PREMIUM AND DISCOUNT ON BONDS

As a rule, bonds when issued are sold at a price either above or below their face or par value. Consequently it becomes necessary to distinguish between the nominal and the effective rate of interest on the bonds. The nominal rate is that appearing on the interest coupon. The effective rate is the true interest cost to the issuing corporation, or conversely, the true yield to the investor. Hence, when bonds are sold above or below par, the premium or discount must be considered in figuring the effective rate.

Premium on Bond.—Since bonds at maturity will bring only their face value, any premium paid for them upon their issuance represents the total amount which must be deducted in instalments, in the successive interest periods, from the nominal rate. The amount to be thus deducted in each interest period is found by prorating the amount of the premium over the total number of interest periods in the life of the bond on a compound interest basis. Thus, if a 6% 10-year bond having face value of $1,000 is sold for $1,000, or at a premium of 10%, the true interest cost per annum to the issuing corporation or the yield to the purchaser of the bond is less than 6%, not only because $60 will be the amount of interest on a principal of $1,100, but also because upon the maturity of the bonds settlement will be made by the payment of only $1,000. The $100 of the principal, called premium, will have been repaid in instalments, calculated on compound interest basis, over the life of the bonds, out of the periodical payment of $60, which includes both actual interest and this instalment payment of a portion of the principal.

Discount.—A discount on bonds represents the total addition to be made in periodical instalments to the nominal rate of interest in order to arrive at the actual or effective rate. A bond with a coupon rate of 6% per annum, which is sold for $900 and will be redeemed at maturity by the payment of $1,000 bears a higher rate of interest than 6%, partly because $60 is received on each interest date on a principal of only $900 and partly because the corporation will pay at maturity $100 more than it received. This payment of $100 represents additional interest which is prorated over the life of the bond and added to the nominal interest rate.

Values, to the Nearest Cent, of a Bond for $1,000,000 at 4½% Interest, Payable Semiannually

Net Inc.	18 Years	18½ Years	19 Years	19½ Years	20 Years
2 50	1 288 472 67	1 294 787 83	1 301 025 01	1 307 185 20	1 313 269 33
2 55	1 280 072 46	1 286 173 74	1 292 198 21	1 298 146 84	1 304 020 58
2 60	1 271 740 13	1 277 630 93	1 283 446 13	1 289 186 70	1 294 853 60
2 65	1 263 475 09	1 269 158 74	1 274 768 06	1 280 304 03	1 285 767 61
2 70	1 255 276 76	1 260 756 55	1 266 163 34	1 271 498 12	1 276 761 83
2 75	1 247 144 54	1 252 423 72	1 257 631 29	1 262 768 23	1 267 835 49
2 80	1 239 077 87	1 244 159 63	1 249 171 23	1 254 113 64	1 258 987 81
2 85	1 231 076 15	1 235 963 67	1 240 782 52	1 245 533 66	1 250 218 06
2 90	1 223 138 83	1 227 835 22	1 232 464 49	1 237 027 59	1 241 525 47
2 95	1 215 265 35	1 219 773 68	1 224 216 49	1 228 594 72	1 232 909 31
3 00	1 207 455 13	1 211 778 46	1 216 037 89	1 220 234 37	1 224 368 84
3 05	1 199 707 64	1 203 848 94	1 207 928 04	1 211 945 86	1 215 903 34
3 10	1 192 022 31	1 195 984 55	1 199 886 32	1 203 728 52	1 207 512 09
3 15	1 184 398 62	1 188 184 71	1 191 912 10	1 195 581 68	1 199 194 37
3 20	1 176 836 02	1 180 448 83	1 184 004 76	1 187 504 68	1 190 949 49
3 25	1 169 333 97	1 172 776 35	1 176 163 69	1 179 496 87	1 182 776 75
3 30	1 161 891 95	1 165 166 70	1 168 388 29	1 171 557 59	1 174 675 45
3 35	1 154 509 44	1 157 619 31	1 160 677 96	1 163 686 21	1 166 644 91
3 40	1 147 185 91	1 150 133 64	1 153 032 09	1 155 882 10	1 158 684 46
3 45	1 139 920 85	1 142 709 12	1 145 450 11	1 148 144 61	1 150 793 43
3 50	1 132 713 76	1 135 345 22	1 137 931 42	1 140 473 14	1 142 971 15
3 55	1 125 564 13	1 128 041 40	1 130 475 46	1 132 867 07	1 135 216 97
3 60	1 118 471 46	1 120 797 11	1 123 081 64	1 125 325 78	1 127 530 23
3 65	1 111 435 25	1 113 611 83	1 115 749 41	1 117 848 67	1 119 910 31
3 70	1 104 455 01	1 106 485 04	1 108 478 19	1 110 435 14	1 112 356 55
3 75	1 097 530 27	1 099 416 21	1 101 267 45	1 103 084 61	1 104 868 33
3 80	1 090 660 52	1 092 404 83	1 094 116 61	1 095 796 48	1 097 445 02
3 85	1 083 845 30	1 085 450 38	1 087 025 15	1 088 570 17	1 090 086 02
3 90	1 077 084 14	1 078 552 37	1 079 992 51	1 081 405 12	1 082 790 70
3 95	1 070 376 56	1 071 710 28	1 073 018 18	1 074 300 74	1 075 558 46
4 00	1 063 722 11	1 064 923 63	1 066 101 60	1 067 256 47	1 068 388 70
4 05	1 057 120 31	1 058 191 92	1 059 242 27	1 060 271 76	1 061 280 83
4 10	1 050 570 72	1 051 514 67	1 052 439 66	1 053 346 06	1 054 234 26
4 15	1 044 072 88	1 044 891 39	1 045 693 25	1 046 478 82	1 047 248 41
4 20	1 037 626 35	1 038 321 60	1 039 002 54	1 039 669 48	1 040 322 71
4 25	1 031 230 68	1 031 804 83	1 032 367 03	1 032 917 53	1 033 456 58
4 30	1 024 885 43	1 025 340 61	1 025 786 20	1 026 222 42	1 026 649 46
4 35	1 018 590 17	1 018 928 47	1 019 259 58	1 019 583 63	1 019 900 79
4 40	1 012 344 46	1 012 567 96	1 012 786 66	1 013 000 64	1 013 210 02
4 45	1 006 147 88	1 006 258 62	1 006 366 96	1 006 472 94	1 006 576 61
4 50	1 000 000 00	1 000 000 00	1 000 000 00	1 000 000 00	1 000 000 00
4 55	993 900 41	993 791 65	993 685 30	993 581 33	993 479 67
4 60	987 848 68	987 633 12	987 422 40	987 216 42	987 015 08
4 65	981 844 41	981 523 97	981 210 82	980 904 79	980 605 70
4 70	975 887 18	975 463 78	975 050 10	974 645 92	974 251 02
4 75	969 976 59	969 452 11	968 939 79	968 439 35	967 950 53
4 80	964 112 25	963 488 52	962 879 42	962 284 59	961 703 70
4 85	958 293 75	957 572 61	956 868 55	956 181 16	955 510 04
4 90	952 520 69	951 703 95	950 906 73	950 128 58	949 369 04
4 95	946 792 70	945 882 11	944 993 52	944 126 40	943 280 21
5 00	941 109 37	940 106 70	939 128 49	938 174 14	937 243 06

BOND CALCULATIONS

Bond Tables.—Bond tables have been devised to simplify the labor involved in determining:

1. The price to be paid when the yield is known
2. The yield when the cost is known

Such tables usually give the common investment yield rates on a semiannual basis, and for periods of maturity varying from one year to 100 years at rates that range from 3% to 8% per annum.

To illustrate the use of such tables the following two examples are given, in connection with which the table on page 211, taken from Sprague's "Extended Bond Tables," is used.

How to Find the Price of a Bond When the Yield is Known.—

Example. What price shall be paid for a $1,000 bond, due 18 years hence, bearing interest at 4½% per annum, payable semiannually, to yield 5% per annum on the investment?

In the 4½% table on page 211 look down the column headed 18 years until the line of net income of 5% is reached. The price to be paid for the bond is $941.11.

How to Find the Yield When the Cost is Known.—

Example. A problem that occurs quite frequently and which is somewhat difficult of solution by ordinary formula and even then requiring the use of logarithms, may be more easily solved by the use of bond tables. Such a problem may be stated as follows What rate of interest may an investor expect who pays 118¾ for a 4½% bond maturing in 19½ years?

Turn to the 4½% table (page 211) in the column headed 19½ years. Follow down the column until the value 118 75 is reached. It will be found to be on the net income line of 3.20%. In other words, a 4½% bond bought at 118¾ maturing in 19½ years will yield 3.20% per annum on the investment.

SINKING FUND CALCULATIONS

Periodical Payment.—Sinking funds are usually used to accumulate sums for the extinguishment of debts or the replacement of assets. Such sums consist of periodical contributions and thus form annuities. Such problems are not uncommon in business. Corporations floating bond issues frequently advertise that sinking funds will be created to retire the issues at maturity.

The problem becomes one of determining what sum shall be set aside periodically to provide a sinking fund. This is equivalent to determining the amount of an annuity of $1 at the given rate of interest for the number of periods and dividing the amount thus found into the total amount to be retired. The amount of the periodical sum to be set aside is found by means of the following formula:

$$\text{Periodical payment to sinking fund} = \frac{S.\,F.}{A}$$

S. F. represents the amount to be accumulated in the sinking fund or the bond issue to be retired and *A* represents the amount of the annuity of $1 for a given number of periods at a given rate of interest.

Example. A corporation on June 1, 1932, issued bonds due June 1, 1938, to the amount of $200,000, bearing interest at 6% per annum payable semiannually. Provision was made to set up a sinking fund to retire the entire issue at maturity.

There are 12 interest periods with interest at 3%. The factor 14.19202956 is obtained from the table on page 147, "The Amount of an Annuity," in the 3% column and on the line corresponding to 12 periods.

Dividing $200,000, the total bond issue, by 14.1920296, gives $14,092.42 as the semiannual sinking fund instalment.

Schedule of Sinking Fund Instalments.—The following schedule shows the periodical amounts set up and the interest earned on the accumulated balances in the sinking fund. The total semiannual instalments plus the accumulated interest earned by the sinking fund equal $200,000, the accumulated amount in the sinking fund June 1, 1938, the date of maturity of the bonds.

Date	Semiannual Instalment	Interest at 3% on Accumulated Sinking Fund	Total Additions to Sinking Fund	Accumulated Amounts in Sinking Fund
June 1, 1932	—	—	—	—
Dec 1, 1932	$ 14,092 42	—	$ 14,092 42	$ 14,092 42
June 1, 1933	14,092.42	$ 422 77	14,515 19	28,607 61
Dec 1, 1933	14,092 42	858 23	14,950.65	43,558.26
June 1, 1934	14,092 42	1,306 75	15,399 17	58,957 43
Dec 1, 1934	14,092 42	1,768 71	15,861 13	74,818 56
June 1, 1935	14,092 42	2,244 55	16,336.97	91,155 53
Dec 1, 1935	14,092 42	2,734 66	16,827 08	107,982 61
June 1, 1936	14,092 42	3,239.48	17,331 90	125,314 51
Dec 1, 1936	14,092 42	3,759 43	17,851 85	143,166 36
June 1, 1937	14,092 42	4,294 99	18,387 41	161,553 77
Dec 1, 1937	14,092 42	4,846 61	18,939 03	180,492 80
June 1, 1938	14,092 42	5,414 78	19,507.20	200,000 00
	$169.109 04	$30.890 96	$200,000 00	

Bond Register

CLASS *Registered 1st Mortgage 1938*

	NO.	DATE OF BOND		TO WHOM ISSUED		TRANSFERRED		AMOUNT
				NAME	ADDRESS	NAME	ADDRESS	
1	4000	1931 July	1	James Morse	468 West 87th St New York City			$1,000 00
2	~~4001~~	~~..~~	~~1~~	~~J.B Jackson~~	~~Brookline, Mass.~~	Wm. R. Gilbert	Brookline, Mass.	~~1,000 00~~
3	4002	Oct.	15	Henry R. Dale	Garrison, N.Y.			500 00
4	4003	1932 Feb.	12	L D Hurst	500 Boyston St. Boston, Mass			250.00
5	4004	Mch.	20	Ralph R. Gray	374 Park Ave. New York City			1,000 00
6	4167	1933 Jan	1	Wm. R. Gilbert	Brookline, Mass.			1,000.00
7								
8								
9								
10								
32								
33								
34								

(Left-hand page)

INTEREST PAYABLE *January 1st & July 1st*

INTEREST DATE		1932 JAN.	1932 JULY	1933 JAN.	1933 JULY	1934 JAN.	1934 JULY	1935 JAN.	1935 JULY	1940 JAN.	1940 JULY	1941 JAN.	1941 JULY	REMARKS	
1931 July	1	*30* —	*30* —	*30* —	*30* —										1
"	1	*30* —	*30* —	*30* —	*(See No 4167)*										2
Nov	1	*5* —	*15* —	*15* —	*15* —									*Rec'd Int. 7/1/31 to 11/1/31 $10 00*	3
1932 Mch.	1	—	*5* —	*7 50*	*7 50*									*1/1/32 to 3/1/32 $2.50*	4
"	1	—	*30* —	*30* —	*30* —									*1/1/32 to 3/1/32 $10 00*	5
1933 Jan.	1	—	—	—	*30* —									*Trans. from #4001.*	6
															7
															8
															9
															10
															32
															33
															34

(Right-hand page)

BOND REGISTER

It is a function of the treasurer of a corporation to record registered bonds in a book known as the bond register. This record shows the number of each bond, date issued, name of each bondholder, due dates, and amounts of interest payments for each bond. A typical form of bond register (from "Financial Handbook") is shown on pages 214 and 215. In the case of coupon bonds, the treasurer keeps a coupon register to show for each bond the coupons paid for successive interest dates.

ACCRUED INCOME AND EXPENSE

Accrued income is income which has been earned to the date of the closing of the books though it is not due and payable as yet. It is set up as an asset and credited to current income. What is accrued income on the books of the prospective recipient is accrued expense on the books of the prospective payer. It is a liability which has been incurred to date though it is not payable until a later date, and as such it should appear on the books. An example is interest on a loan. This may be payable annually on June 31; but if the books of both lender and borrower are closed December 31, the lender should include among his assets the half-year's interest earned since June 31, while the borrower should carry among his liabilities the same amount as an expense that has accrued.

Common examples of accrued income are, besides interest, rent receivable and royalties receivable. Common examples of accrued expense are rent payable, royalties payable, taxes, wages, and salaries.

PREPAID EXPENSE AND INCOME AND DEFERRED CHARGES

Prepaid Expense and Income.—Prepaid expense is an expenditure of cash for a service which has not as yet been rendered. It is equivalent to making an advance, which is to be repaid, however, in the stipulated service. As such it is an asset. The asset, however, decreases in value to the extent that the service is rendered. At the close of the fiscal period only the amount of service still due is the asset taken up on the books. What is a

prepaid expense to the buyer of the service is prepaid income to the seller of the service. He in effect borrows the money until he repays it in service of equivalent value. Prepaid income is, therefore, a liability.

A common example of prepaid expense and income is prepaid rent. Rent paid monthly in advance is an asset to the tenant who pays it and a liability to the landlord who receives it. At the end of the month, before the next rental payment is made, both the asset and the liability are extinguished. But when the books are closed at some date during the month, the prepayment calculated for the balance of the month must be taken into consideration on the books of both tenant and landlord.

Deferred Charge.—Another name of prepaid expense is deferred charge. However, it is usual to use the term prepaid expense with reference to service that will be received in full in a year or less, while it is customary to reserve the term deferred charges to prepayments made for services, the benefits of which may be considered to extend over several years. Thus an extensive advertising campaign may be taken as yielding benefits for more than a year, and its cost will be carried as an asset for that period, with a proportionate diminution each year. Accordingly, prepaid expense as thus construed is considered a current asset, while deferred charges partake of the nature of fixed assets. Prepaid income is also referred to as deferred income or a deferred credit.

Examples of prepaid expense are the following payments made in advance: insurance premiums, taxes, licenses, and traveling expenses. The same items are prepaid income to one who receives the payments and is obligated to furnish the service in question over a future period.

CHARACTERISTICS OF NEGOTIABLE INSTRUMENTS

A negotiable instrument is a contract which conforms to the following requirements:

1. It must be in writing and signed by the maker or drawer. The writing may be with any material—ink, pencil, etc.—and the signature may be any mark, initial code, or designation which a party may choose to adopt and bind himself by.

2. It must contain an unconditional promise or order to pay a sum certain in money The money must be payable without any qualifications which would hamper its circulation. A sum certain is an amount which can be definitely computed by the holder
3. It must be payable on demand or a determinable future time An instrument payable upon a contingency is not negotiable whether the event happens or not.
4. It must be payable to order or bearer. When the instrument is payable to order, the payer must be named or otherwise indicated with reasonable certainty.
5. Where the instrument is addressed to a drawer, who is to pay it, he must be named or otherwise indicated in the instrument with reasonable certainty.

INDORSEMENTS OF NEGOTIABLE INSTRUMENTS

Types of indorsements are as follows:

Special Indorsement.—Specifies the person to whom or to whose order the instrument is payable. The indorsement of the one named is necessary to the further negotiation of the instrument, except that if the instrument was made payable to bearer or indorsed specifically to bearer prior to the special indorsement, it may be negotiated by delivery; but the person indorsing specially is liable as indorser to only such holders as make title through his indorsement.

Blank Indorsement.—No indorsee is specified, only the name of the indorser being used. Such an instrument may be negotiated by delivery. The holder may convert a blank indorsement into a special indorsement by writing the necessary words over the signature of the indorser.

Restrictive or Qualified Indorsement.—(a) Prohibits the further negotiation of the instrument (pay to John Smith only); or (b) makes the indorsee the agent of the indorser (pay to the order of the First National Bank, for collection, deposit, etc.); or (c) gives title to the indorsee in trust for or to the use of some other person (pay to A for the account of B). The mere absence of words implying power to negotiate does not make an indorsement restrictive. Checks and drafts deposited with a bank for collection are generally indorsed as in (b).

A restrictive indorsement gives the indorsee the right (a) to receive payment of the instrument, (b) to bring any action on the instrument that the indorser could bring, and (c) to transfer his rights as such an indorsee where the form of the indorsement authorizes him to do so. But all subsequent indorsees acquire only the title of the first indorsee under a restrictive indorsement, and cannot be holders in due course.

Qualified Indorsement.—Passes title without making the indorser liable on the instrument except as an assignor. The words "without recourse" are usually added to the indorser's signature. The negotiability is not affected by such an indorsement.

LIABILITY OF PARTIES TO A NEGOTIABLE INSTRUMENT

Liability of the Maker.—The maker is primarily liable to pay the note according to its terms. He admits the existence of the payee and his capacity to transfer the instrument by indorsement. No steps are necessary to fix the liability of a maker of a note. Suit may be brought at once without presentment if the note is not paid at maturity.

Liability of the Drawer.—The drawer may insert in the instrument an express stipulation negativing or limiting his own liability to the holder, but in the absence of such express stipulation he:

1. Admits the existence of the payee and his authority to indorse and negotiate the bill of exchange
2. Engages to pay the instrument if, after being presented to the drawee for acceptance or payment, it is dishonored and the proper steps of notice and, in some cases, protest are taken.

Liability of the Drawee.—The drawee is not liable on a bill of exchange until he accepts it, but he may be liable to the drawer for damages for non-acceptance if he thereby violates a contract and injures the credit of the drawer. Since a negotiable instrument cannot be limited to a particular fund, a bill of exchange is not an assignment of funds but is drawn upon the general credit of the drawee.

Liability of the Acceptor.—The acceptor by accepting the instrument:

1. Engages to pay the instrument according to the terms of the acceptance.
2. Admits the existence of the drawer, the genuineness of his signature, and his capacity and authority to draw the instrument
3. Admits the existence of the payee and his capacity to negotiate the instrument by indorsement.

Liability of the Indorser.—Every person negotiating an instrument warrants:

1. That the instrument is genuine and in all respects what it purports to be.
2. That he has a good title to it.
3. That all prior parties had capacity to contract; except that this warranty does not apply to persons negotiating public or corporate securities other than bills or notes.

NOTICE OF DISHONOR AND PROTEST OF A NEGOTIABLE INSTRUMENT

When a negotiable instrument has been dishonored by non-acceptance or non-payment, notice of the dishonor must be given to the drawer and to each indorser in order to hold them liable on the instrument, except in certain instances. The notice may be written or oral.

A foreign bill of exchange, i.e., one which is not both drawn and payable within one state, must be protested if it is dishonored for non-acceptance or for non-payment if not previously protested for non-acceptance, in order to hold the drawer and indorsers liable. If a bill does not appear on its face to be a foreign bill, protest is unnecessary. Promissory notes need not be protested. The protest is a formal statement made under the hand and seal of a notary public, or any respectable resident of the place where the bill is dishonored, in the presence of two or more credible witnesses. It must specify:

1. The time and place of presentment.
2. The fact that presentment was made and the manner in which it was made.
3. The cause or reason for protesting the bill.
4. The demand made and the answer given, if any, or the fact, that the drawee or acceptor could not be found.

LEGAL INTEREST RATES

State	Legal Rate of Interest	Maximum Rate Permitted by Agreement
Alabama	6%	8%
Arizona	6	10
Arkansas	6	10
California	7	12
Colorado	8	12 On amounts to $300 and any agreed rate above this amount
Connecticut	6	12
Delaware	6	6
District of Columbia	6	8
Florida	8	10
Georgia	7	8
Idaho	7	10
Illinois	5	7
Indiana	6	8
Iowa	6	8
Kansas	6	10
Kentucky	6	6
Louisiana	5	8
Maine	6	Any rate parties may agree to
Maryland	6	6
Massachusetts	6	Any rate parties may agree to
Michigan	5	7
Minnesota	6	8
Mississippi	6	8
Missouri	6	8
Montana	8	10
Nebraska	7	10
Nevada	7	12
New Hampshire	6	Any rate parties may agree to
New Jersey	6	6
New Mexico	6	12 On unsecured loans 10 On secured loans
New York	6	6 No restriction on demand loans above $5,000 secured by collateral
North Carolina	6	6
North Dakota	6	9
Ohio	6	8
Oklahoma	6	10
Oregon	6	10
Pennsylvania	6	6
Rhode Island	6	30
South Carolina	7	8
South Dakota	7	10
Tennessee	6	6
Texas	6	10
Utah	8	12
Vermont	6	6
Virginia	6	6
Washington	6	12
West Virginia	6	6
Wisconsin	6	10
Wyoming	7	10

Legal interest is the rate prescribed by law which will prevail in the absence of a special agreement between the parties. Lawful interest is any rate agreed upon up to the maximum fixed by statute. Charging a rate beyond this maximum is usury.

The table which appears on the preceding page gives the legal and maximum lawful rates of interest as prescribed in the several states.

STOCK RIGHTS AND THEIR VALUE

Nature of Stock Rights.—A stock right is the privilege accorded stockholders of participating in a new issue of stock or in a further issue of stock already outstanding. This right of preemption attaches to the common stock and may also attach to the preferred. The offering price of the stock is usually fixed below the market value of that outstanding. To the extent that the market price of the stock is in excess of the offering price, this issue of additional shares is equivalent to a stock split-up. Stock rights are generally evidenced by transferable warrants in the form of engraved certificates.

Value of Stock Rights.—The privilege accorded stockholders to subscribe for shares at less than the market price of the shares has naturally value. This value tends to maintain in the market such a relation with the value of the stock that the two are on a parity with each other, in the sense that it is immaterial to one whether he purchases the old stock or purchases stock rights and subscribes for the new shares. This tendency is the result of the arbitraging operations of stock brokers who are quick to take advantage of any departure in either direction from this parity relationship. Thus, if the stock is selling above their parity with the rights, they will sell the stock short, purchase rights, subscribe for new stock, and deliver the latter to cover their short commitment. Such transactions tend to bring the stock and the rights to a closer parity relationship.

The parity value of stock rights when they are quoted rights is calculated according to the following formula, in which m is the market value of the stock, s the subscription price of the new, and r the number of shares which a stockholder must have to entitle him to subscribe to one new share.

$$\text{Parity value of right} = \frac{m - s}{r + 1}$$

Example. Assume that on July 8, 19– a company offers stockholders the privilege of subscribing to one share of common stock for every two held at $26 a share, and at the moment the stock is selling in the market at $50. The parity value of a right is:

$$\frac{50 - 26}{2 + 1} = 8$$

When the stock sells ex-rights, the formula is:

$$\text{Parity value of right} = \frac{m - s}{r}$$

In practical arbitraging, however, account is taken, in figuring the parity value of a right, of sundry other factors of income received and expense incurred in connection with such operations, as brokerage charges, interest, dividends, etc.

BONUS STOCK AND STOCK UNITS

Bonus Stock.—Bonus stock is stock, usually common shares, offered as a bonus with bonds and preferred stock in order to encourage the purchase of the latter on the part of investors. Stock is also issued as a bonus to managers and other employees under an agreement, for example, that they are to receive, in addition to their regular salaries, in every year in which the profits amount to a certain sum or more, a bonus of a certain amount payable in the stock of the corporation.

Bonus stock issued with bonds and preferred stock may consist of a share or several shares or a fraction of a share with each bond or preferred stock sold to investors.

Stock Units.—Stock units are analagous to an offering of bonus stock and consist of a combination offering of a certain number of shares of preferred and common shares for a stated price. Thus a company may offer to sell its preferred and common stock in units consisting each of one share of preferred and two shares of common for $50 per unit. The stock units as originally issued may be the actual certificates for the preferred and common shares, respectively; or both issues may be represented by one temporary certificate, called "allotment certificate." Year or so later, or whatever the stipulated period may be, the allotment certificates are exchanged for the definitive stock certificates.

STOCK DIVIDENDS—NATURE AND PURPOSE

A stock dividend is one payable in the stock of the corporation declaring it. If it is in stock with par value, the effect of the dividend is to transfer from surplus to capital stock the aggregate amount of par value of the new shares. If the stock is without par value, the amount of surplus thus capitalized may be the stated value of the outstanding shares times the number of new shares, or it may be some arbitrary amount, depending partly upon the law of the state in which the company is incorporated. The essence of a stock dividend is this capitalization of the surplus, and without such capitalization the issue of the stock amounts to merely a stock split-up—the same amount of capital stock being represented by an increased number of shares. In the case of no-par value shares not having a legally enforceable stated value, a certain amount of surplus may be capitalized without issuing any additional shares, the effect being merely to increase the stated or carrying value of the old, outstanding stock.

Purposes of Stock Dividends.—The reasons for the declaration of stock dividends are as follows:

1. To increase the capital stock, which is the margin of safety reserved for the protection of creditors and thus provide a broader basis for the conduct of an expanding business.
2. To reduce the size of shares having a high market value and broaden the market activity in them. The same purpose, however, can be achieved by a stock split-up
3. To conceal from the general public increased cash dividends by paying the same rate upon a great number of shares.
4. To conserve cash by declaring stock dividends periodically in lieu of cash dividends.
5. To save the federal income surtax payable on cash dividends inasmuch as stock dividends are not so taxable.

Stock Dividend Not Income.—In cases involving disposition of trust funds as between the life-tenant, entitled to the income of the trust fund, and the remainderman, entitled to the principal upon the death of the life-tenant, courts have consistently followed the rule that a stock dividend is not income, since the recipient is no better off than he was before. The United States Supreme Court in *Eisner v Macomber* has adopted the same rule with reference to the federal income tax. Taxpayers are, therefore, not

obliged to report stock dividends as income in their returns. Many investment companies, however, treat stock dividends which they receive periodically in lieu of cash dividends as income in reporting their earnings for general corporate purposes. The occasional large stock dividends, however, are not so treated.

TREASURY STOCK AND BALANCE SHEET TREATMENT

Treasury stock is stock once issued, as fully paid and non-assessable, which has come back into the possession of the issuing company. It is reacquired in various ways, of which the most common are the following:

1. By purchase
2. Through donation
3. By forfeiture of the stock
4. In payment of a debt due the company

Treasury stock is still issued though no longer outstanding stock. Unissued stock, whether or not reserved for particular purposes, is not treasury stock. Neither is stock in another company purchased and held as an investment or for purposes of control. Treasury stock may be resold by the directors at any price, even below its par, and it will still remain fully paid and non-assessable. It is not an asset and should not be treated as such on the balance sheet—least of all lumped with the current assets. It should be carried on the balance sheet as a deduction either from capital stock or from surplus. The latter is legally the more correct method in many states, in view of the statutes and court decisions requiring that treasury stock when purchased be paid for "out of surplus," or "without impairing the capital stock."

STOCK PURCHASE WARRANTS

Stock purchase warrants, also known as stock option warrants, or simply option warrants, are commonly attached to bonds, short-term notes, preferred stock, and at times to common stock, and entitle owners of these securities to purchase, usually, shares of common stock, in a stated ratio to their holdings, at a certain price per share, and within a stated period of time. The purpose of the warrants is to make the bonds or stock they are attached

to a more attractive purchase to investors. The holders of securities with warrants have not only the greater security that goes with a bond or preferred stock, but they will also have the opportunity to participate in any speculative profits the future may bring the common stockholders by exercising the option represented by the warrants.

Stock purchase warrants are either detachable or non-detachable. If the former, they are separately negotiable and have an individual market, their price, however, rising and falling in sympathy with the stock issuable upon the exercise of the warrants. If the warrants are non-detachable, there is no separate market for them, their value remaining merged with that of the bond or stock to which they are attached. The warrants are sometimes issued as independent instruments, unattached to any security, either by way of compensating underwriting bankers for the flotation of bond or stock issues in reorganization of failed concerns.

FRACTIONAL SHARES AND STOCK SCRIP

Stock scrip refers to instruments of a temporary nature issued to represent fractional shares, which it is desired to retire as soon as possible. Issue of fractional shares by corporations is a frequent occurrence owing to such corporate transactions as stock dividend declarations, issue of stock rights, stock split-ups, stock and bond conversions, recapitalizations, mergers, consolidations, purchase of assets as an entirety, and reorganizations, all of which may give rise to such fractional interests. A corporation, for example, may declare a stock dividend of 1/50th of a share. Unless a stockholder happens to hold 50 shares or an exact multiple of 50, he will receive a fractional share in addition to a certain number of whole shares.

As it is found desirable to retire fractional shares as soon as possible, one of the methods of doing this is by issuing scrip certificates. These certificates are transferable by mere delivery, have no voting power, and only occasionally are they entitled to dividends or interest, payable when they are surrendered. Provision is made for the early retirement of the scrip by exchanging whole shares for certificates aggregating that number of shares.

Other methods of dealing with fractional shares is to make a cash adjustment instead of issuing them, or by permitting stockholders to accumulate credits for fractional shares until they amount to full shares.

STANDARD METHODS OF GRAPHIC PRESENTATION

Graphic presentation consists in the use of curves to show the relationship between two or more variable quantities. Graphs may be used to show the occurrence of a series of events or a tendency during time, or they may be used to show the facts with regard to a variable condition as at a given point in time.

The Joint Committee on Standards for Graphic Presentation (Willard C. Brinton, chairman), which was appointed by certain scientific associations and governmental offices, formulated seventeen suggestions. These have by accepted practice become the standard working rules and as such are given, together with illustrative charts (Figs. 1-17), below and on following pages.

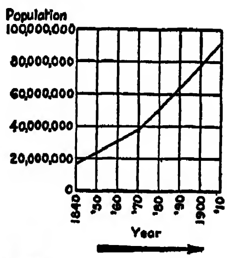


FIG. 1 The general arrangement of a diagram should proceed from left to right.

FIG. 2. Where possible represent quantities by linear measurements as areas or volumes are more likely to be misinterpreted

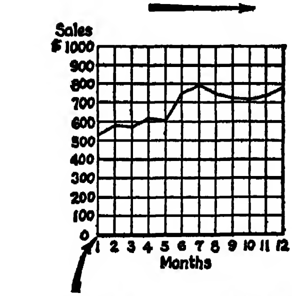


FIG 3. For a curve the vertical scale, whenever practicable, should be so selected that the zero line will appear on the diagram.

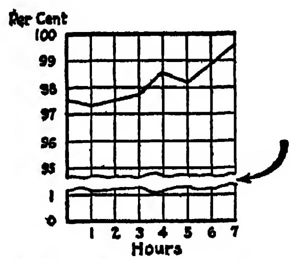


FIG 4 If the zero line of the vertical scale will not normally appear on the curve diagram, the zero line should be shown by the use of a horizontal break in the diagram.

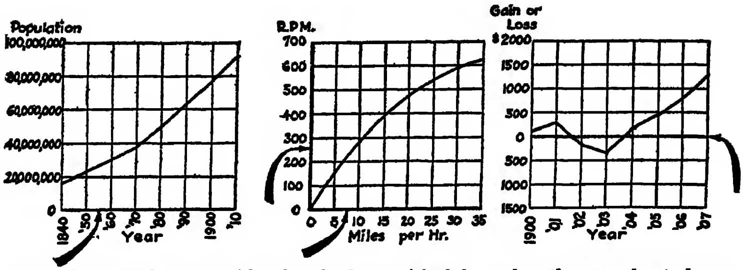


FIG. 5. The zero line should be sharply distinguished from the other coordinate lines.

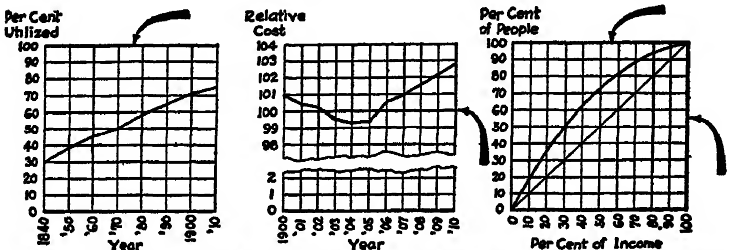


FIG. 6 For curves having a scale representing percentages, it is usual to emphasize in some distinctive way the 100% line or other line used as a basis of comparison.

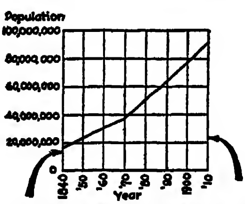


FIG. 7. When the scale refers to dates, and the period represented is not a complete unit, it is better not to emphasize the first and last ordinates, since such diagram does not represent the beginning or end of time.

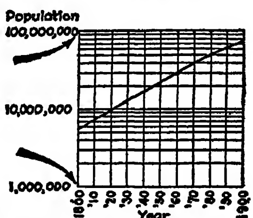


FIG. 8. When curves are drawn on logarithmic coordinates, the limiting lines of the diagram should each be at some power of ten on the logarithmic scales.

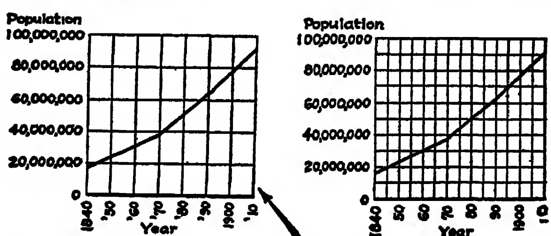


Fig. 9. It is advisable not to show any more coordinate lines than necessary to guide the eye in reading the diagram

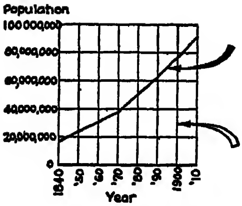


Fig. 10. The curve lines of a diagram should be sharply distinguished from the ruling

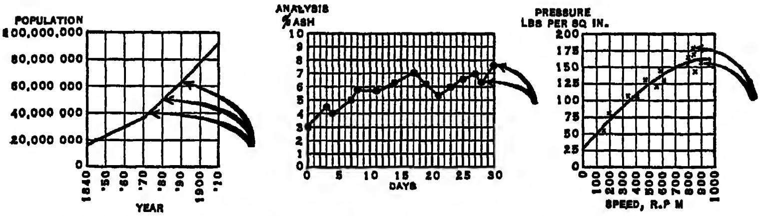


Fig. 11 In curves representing a series of observations, it is advisable, whenever possible, to indicate clearly on the diagram all the points representing the separate observations.

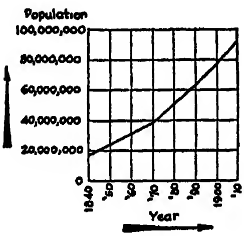


Fig 12. The horizontal scale for curves should usually read from left to right and the vertical scale from bottom to top.

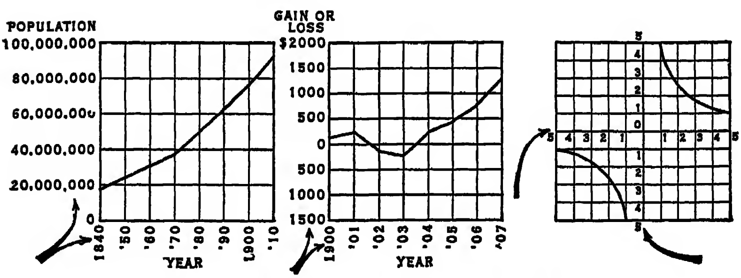


Fig. 13 Figures for the scales of a diagram should be placed at the left and at the bottom or along the respective axes.

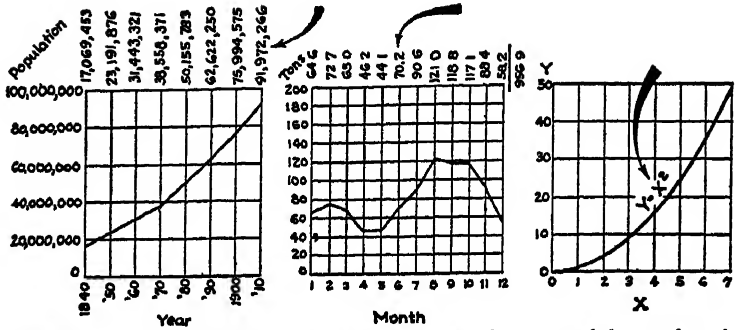
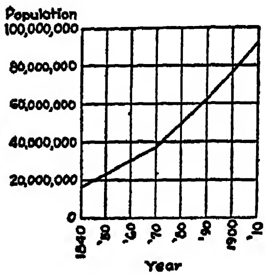


Fig 14 It is often desirable to include in the diagram the numerical data or formula represented.



Year	Population
1840	17,069,453
1850	23,191,876
1860	31,443,321
1870	38,558,371
1880	50,155,783
1890	62,622,250
1900	75,994,575
1910	91,972,266

Fig. 15. If numerical data are not included in the diagram, it is desirable to give the data in tabular form accompanying the diagram.

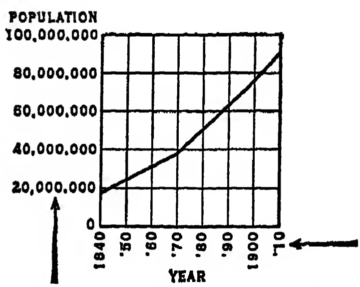
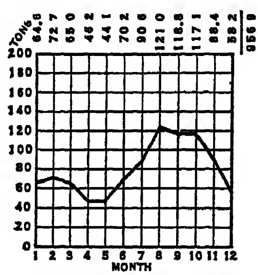


Fig 16. All lettering and all figures on a diagram should be placed so as to be easily read from the base as the bottom, or from the right-hand edge of the diagram as the bottom.



ALUMINUM CASTINGS OUTPUT OF PLANT NO 2, BY MONTHS, 1914. OUTPUT GIVEN IN SHORT TONS. SALES OF SCRAP ALUMINUM ARE NOT INCLUDED.

Fig. 17 The title of a diagram should be made as clear and complete as possible. Subtitles or descriptions should be added if necessary to insure clearness.

WEIGHTS AND MEASURES—UNITED STATES

TROY WEIGHT

24 grains = 1 pennyweight
20 pennyweights = 1 ounce
12 ounces = 1 pound

APOTHECARIES' WEIGHT

20 grains = 1 scruple
3 scruples = 1 dram
8 drams = 1 ounce
12 ounces = 1 pound

The ounce and the pound in this system are the same as in troy weight.

AVOIRDUPOIS WEIGHT

$27\frac{11}{32}$ grains = 1 dram
16 drams = 1 ounce
16 ounces = 1 pound
25 pounds = 1 quarter
4 quarters = 1 hundredweight
2,000 pounds = 1 short ton
2,240 pounds = 1 long ton

DRY MEASURE

2 pints = 1 quart
8 quarts = 1 peck
4 pecks = 1 bushel
36 bushels = 1 chaldron

LIQUID MEASURE

4 gills = 1 pint
2 pints = 1 quart
4 quarts = 1 gallon
31½ gallons = 1 barrel
2 barrels = 1 hogshead
16 fluid ounces = 1 pint

TIME MEASURE

60 seconds = 1 minute
60 minutes = 1 hour
24 hours = 1 day
7 days = 1 week
28, 29, 30, or 31 days = 1 calendar month
365 days = 1 year
366 days = 1 leap year

LONG MEASURE

12 inches = 1 foot
3 feet = 1 yard
5½ yards = 1 rod
40 rods = 1 furlong
8 furlongs = 1 standard mile
3 miles = 1 league

CLOTH MEASURE

2¼ inches = 1 nail
4 nails = 1 quarter
4 quarters = 1 yard

SQUARE MEASURE

144 square inches = 1 square foot
9 square feet = 1 square yard
30¼ square yards = 1 square rod
40 square rods = 1 rood
4 roods = 1 acre
640 acres = 1 square mile

SURVEYORS' MEASURE

7.92 inches = 1 link
25 links = 1 rod
10 square chains or 160 square rods = 1 acre
640 acres = 1 square mile
36 square miles (6 miles square) = 1 township
4 rods = 1 chain

CUBIC MEASURE

1,728 cubic inches = 1 cubic foot
27 cubic feet = 1 cubic yard
2,150.42 cubic inches = 1 standard bushel
231 cubic inches = 1 standard gallon (liquid)
1 cubic foot = 4/5 of a bushel
128 cubic feet = 1 cord (wood)
40 cubic feet = 1 ton (shipping)

CIRCULATION STATEMENT OF UNITED

KIND OF MONEY	TOTAL AMOUNT	MONEY HELD IN THE		
		Total	Amount held as security against Gold and Silver Certificates (and Treasury Notes of 1890)	Reserve against United States Notes (and Treasury Notes of 1890)
Gold	[a] $7, 930, 558, 770	$7, 930, 558, 770	$5, 076, 250, 829	$156, 039, 431
Gold Certificates	[b](5, 076, 250, 829)	[b] (4, 121, 386, 810)		
Standard Silver Dollars	540, 007, 124	504, 945, 854	495, 571, 733	
Silver Bullion (act May 12, 1933)	1, 560, 000	1, 560, 000	1, 560, 000	
Silver Certificates	[b] [c] (495, 943, 309)	[b] (1, 212, 480)		
Treasury Notes of 1890	[b] (1, 188, 424)			
Subsidiary Silver	298, 038, 561	5, 425, 173		
Minor Coin	127, 954, 369	3, 535, 173		
United States Notes	346, 681, 016	3, 145, 640		
Federal Reserve Notes	3, 367, 502, 755	15, 942, 950		
Federal Reserve Bank Notes	151, 712, 063	3, 644, 119		
National Bank Notes	941, 784, 225	19, 320, 025		
Total, July 31, 1934	13, 705, 798, 883	8, 488, 077, 704	5, 573, 382, 562	156, 039, 431
Comparative totals.				
June 30, 1934	$13, 634, 380, 567	$8, 408, 392, 036	$5, 453, 712, 918	$156, 039, 431
July 31, 1933	10, 014, 268, 674	3, 760, 754, 909	1, 671, 392, 918	156, 039, 088
October 31, 1920	8, 479, 620, 824	2, 436, 864, 530	718, 674, 378	152, 979, 026
March 31, 1917	5, 396, 596, 677	2, 952, 020, 313	2, 681, 691, 072	152, 979, 026
June 30, 1914	3, 797, 825, 099	1, 845, 569, 804	1, 507, 178, 879	150, 000, 000
January 1, 1879	1, 007, 084, 483	212, 420, 402	21, 602, 640	100, 000, 000

[a] Does not include gold other than that held by the Treasury.

[b] These amounts are not included in the total since the gold or silver held as security against gold and silver certificates and Treasury notes of 1890 is included under gold, standard silver dollars, and silver bullion, respectively

[c] $1,560,000 secured by silver bullion held in the Treasury.(act May 12, 1933).

[d] This total includes $24,004,522 deposited for the redemption of Federal Reserve notes ($1,037,825 in process of redemption)

[e] Includes $1,800 000,000 Exchange Stabilization Fund

[f] Includes $33,157,677 lawful money deposited for the redemption of national bank notes ($19,229,162 in process of redemption, including notes chargeable to the retirement fund), $2,105,450 lawful money deposited for the redemption of Federal Reserve bank notes ($3,644,116 in process of redemption, including notes chargeable to the retirement fund), $1,350 lawful money deposited for the retirement of additional circulation (act May 30, 1908), and $60,717,734 lawful money deposited as a reserve for Postal Savings deposits

[g] The amount of gold and silver certificates and Treasury notes of 1890 should be deducted from this amount before combining with total money held in the Treasury to arrive at the total amount of money in the United States

[h] Includes money held by the Cuban agency of the Federal Reserve Bank of Atlanta

[i] The money in circulation includes any paper currency held outside the continental limits of the United States

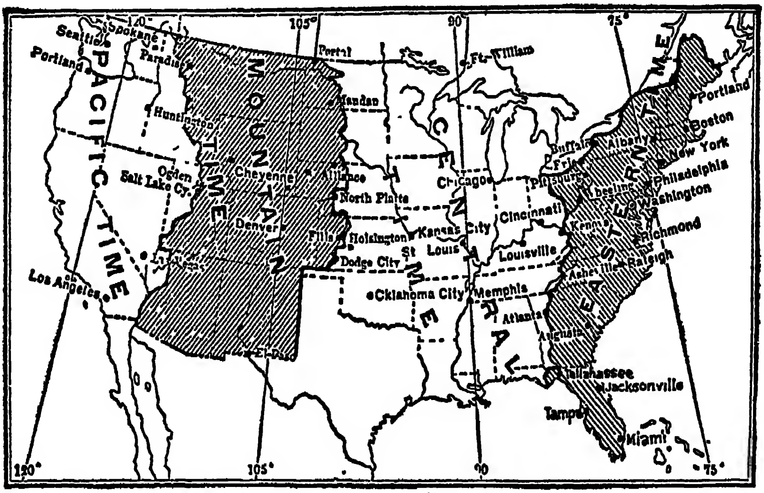
STATES MONEY—JULY 31, 1934

TREASURY		MONEY OUTSIDE OF THE TREASURY				POPULATION OF CONTINENTAL UNITED STATES (ESTIMATED)
Held for Federal Reserve Banks and Agents	All other money	Total	Held by Federal Reserve Banks and Agents[d]	In Circulation[c] Amount	Per capita	
	[a]$2,698,268,510					
[b c]($4,121,386,810)		$954,864,019	$808,626,470	$146,237,549	$1.15	
	9,374,121	35,061,270	4,709,266	30,352,004	.24	
	(1,212,480)	494,730,829	95,752,515	398,978,314	3.15	
		1,188,424		1,188,424	.01	
	5,425,173	292,613,388	12,604,320	280,009,068	2.21	
	3,535,173	124,419,196	3,508,625	120,910,571	.96	
	3,145,640	343,535,376	66,231,573	277,303,803	2.19	
	15,942,950	3,351,559,805	307,136,060	3,044,423,745	24.04	
	3,644,119	148,067,944	15,116,765	132,951,179	1.05	
	19,320,025	922,464,200	37,643,555	884,820,645	6.99	
[e](4,121,386,810)	[f]2,758,655,711	[g]6,668,504,451	1,351,329,149	5,317,175,302	41.99	126,637,000
$3,999,055,310	$2,798,639,687	$6,679,455,159	$1,305,985,407	$5,373,469,752	$42.46	126,564,000
1,752,158,896	181,164,007	7,924,906,683	2,295,054,157	5,629,852,526	44.76	125,766,000
1,212,360,791	352,850,336	6,761,430,672	1,063,216,060	5,698,214,612	53.21	107,096,005
	117,350,216	5,126,267,436	953,321,522	4,172,945,914	40.23	103,716,000
	188,390,925	3,459,434,174		3,459,434,174	34.93	99,027,000
	90,817,762	816,266,721		816,266,721	16.92	48,231,000

NOTE —Gold certificates are secured dollar for dollar by gold held in the Treasury for their redemption for uses authorized by law, silver certificates are secured dollar for dollar by standard silver dollars held in the Treasury for their redemption (or by silver bullion), United States notes and Treasury notes of 1890 are secured by a gold reserve of $156,039,431 held in the Treasury Treasury notes of 1890 are also secured dollar for dollar by standard silver dollars held in the Treasury; these notes are being canceled and retired on receipt. Federal Reserve notes are obligations of the United States and a first lien on all the assets of the issuing Federal Reserve bank Federal Reserve notes are secured by the deposit with Federal Reserve agents of a like amount of gold certificates or of gold certificates and such discounted or purchased paper as is eligible under the terms of the Federal Reserve Act, or, until March 3, 1935, of direct obligations of the United States if so authorized by a majority vote of the Federal Reserve Board Federal Reserve banks must maintain a reserve in gold certificates of at least 40 percent, including the redemption fund which must be deposited with the United States Treasurer, against Federal Reserve notes in actual circulation Federal Reserve bank notes are secured by direct obligations of the United States or commercial paper, except where lawful money has been deposited with the Treasurer of the United States for their retirement National bank notes are secured by United States bonds except where lawful money has been deposited with the Treasurer of the United States for their retirement A 5 percent fund is maintained in lawful money with the Treasurer of the United States for the redemption of national bank notes and Federal Reserve bank notes.

STANDARD TIME

(When it is 12 o'clock noon in the Eastern Time Belt, it is 11 o'clock in the Central Time Belt, 10 o'clock in the Mountain Time Belt, and 9 o'clock in the Pacific Time Belt.)



Pacific Belt Mountain Belt Central Belt Eastern Belt

Standard Time in Various Cities of the World

At 12 o'clock noon Eastern Standard Time in the United States, the time in foreign countries will be as follows:

Aden	8.00 P.M.	Hamburg	6 00 P.M.	Natal	7 00 P.M.
Alexandria	7.00 "	Havana	11.31 A.M.	Paris	5.00 "
Amsterdam	5 20 "	Havre	5 00 P.M.	Leningrad	7.01 "
Athens	7.00 "	Hongkong*	1 00 A.M.	Rio de Janeiro	2.00 "
Berlin	6 00 "	Honolulu	6.30 "	Rome	6.00 "
Berne	6 00 "	Lima	12 00 M.	Santiago	
Bogota	12.03 "	Lisbon	4.24 P.M.	(Chile)	12 00 M.
Bombay	10 30 "	Liverpool	5 00 "	Sitka, Alas.	7.00 A.M.
Bremen	6 00 "	London	5 00 "	Stockholm	6.00 P.M.
Brussels	5 00 "	Madrid	5.00 "	Vienna	6 00 "
Constantinople	7 00 "	Manila*	1 00 A.M.	Yokohama*	2.00 A.M.
Copenhagen	6 00 "	Melbourne*	3 00 "		
Dublin	4 35 "	Mexico City	10.24 "		

At those cities marked with an asterisk (*) the time noted is in the morning of the following day.

BUSINESS ORGANIZATION—VARIOUS TYPES

The four elemental types of industrial organization are as follows:

1. Line or military organization
2. Functional organization
3. Line and staff organization
4. Committee organization

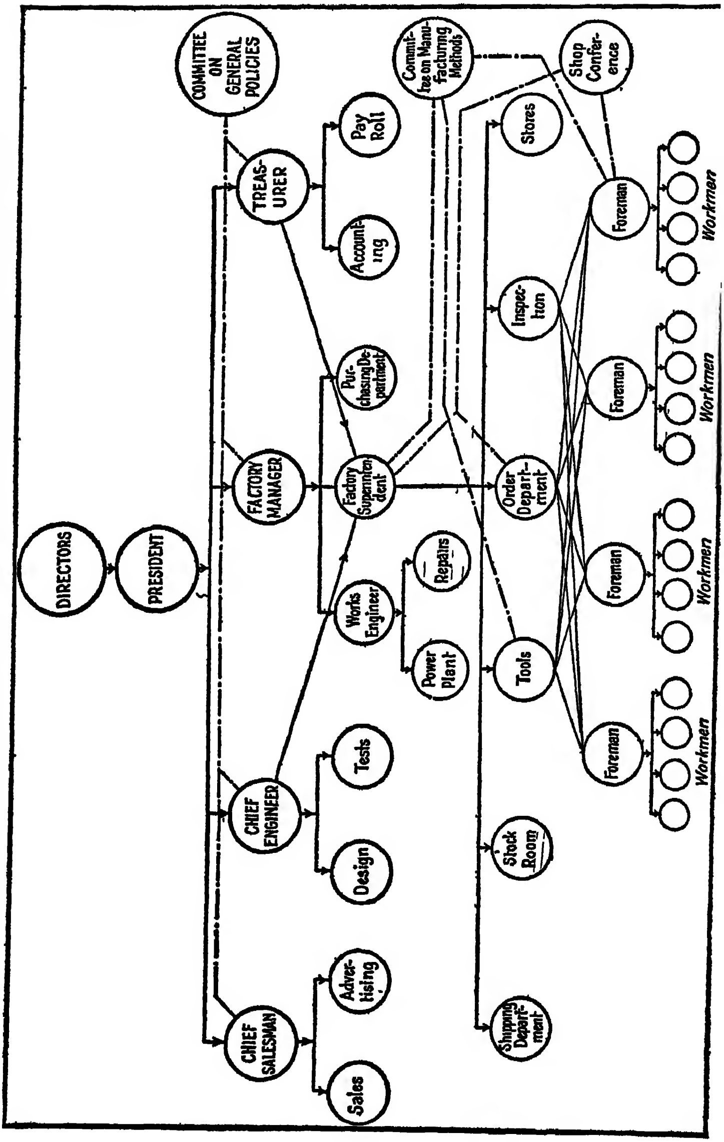
It is unlikely that any one of these can be found in manufacturing in its simple arrangement, as the organization of industrial enterprises is a composite of various forms, the particular way in which they are combined and their relative importance being dependent upon the existing situation.

Line or Military Organization.—This is the oldest and most natural form, being based on ancient military organization. In this form of organization, the lines of authority are all vertical, from superior to subordinate, extending from general manager to workman. Duties and responsibilities may be deputized from general manager to superintendent and from superintendent to foreman. No workman owes duty to or is held responsible by any foreman except the one immediately over him. Subdivisions are such that mental and manual labor required of men on the same organization level is approximately the same.

Functional Organization.—The functional form of organization has been developed to make the greatest use of expert knowledge and advice. Mental and manual work are subdivided and deputized. The lines of authority and instruction pass from each adviser to every functional foreman, and from each functional foreman to every workman. Duties of the foreman may be quite different, for each may have charge of but a certain aspect of the work. A pure example of functional organization is rare among industries.

Line and Staff Organization.—This arrangement combines features of both line and functional types. The following form shows the general plan as it is used in most industrial plants of any size. Primary functional divisions are into sales, engineering, manufacturing, and finance. Heads of these four divisions are equal in authority. Each has certain line duties and responsibil-

Authority and Responsibility Relations under Line and Staff Organization



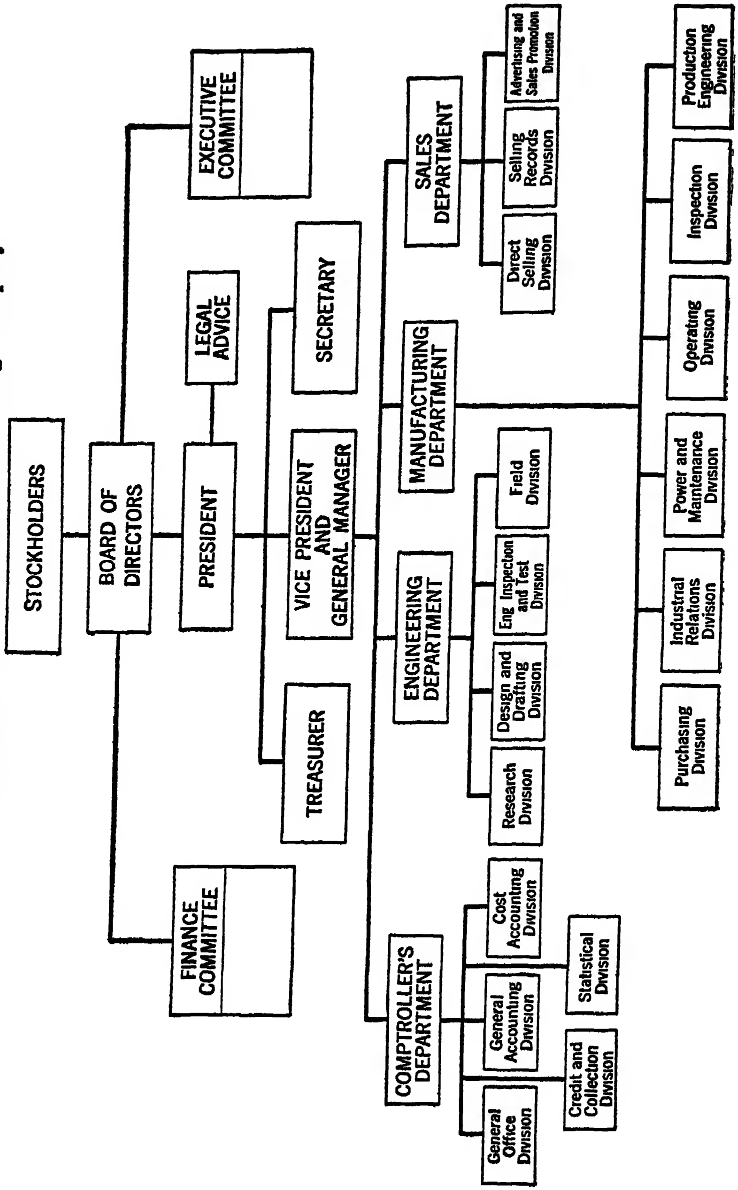
ities. On the other hand, each has certain advisory or staf tions. For illustration, treasurer and chief engineer give and instructions to the factory superintendent. Upon the intendent are functionalized several departments, while t signer, order clerk, and chief inspector give advice to th foreman. Lines of authority and responsibility are verti line executives having least complex duties, and spread fro adviser to line executive wherever expert knowledge and c are needed.

Committee Organization.—This is a modification of li staff type where advisory functions are exercised by comm Committee organization is often set up into what is known manufacturing committee, consisting, for example, of the f manager, the production manager, purchasing agent, two intendents, chief engineer, general manager of manufacturi chief cost accountant. Management under committee f organization is often based upon recommendations of ac committees, appointed by the general manager to study par problems or phases of operations. From a slightly di point of view, committee management is by a group of fun executives or department heads rather than by a single g executive. It is more apt to be found in medium-sized co than in those that are larger or smaller. Where committee is found, it is apt to be a substitute for some capable exe who has left the organization and has not been replaced.

ORGANIZATION CHART OF A BUSINESS

An organization chart shows graphically the relations functions and the flow of authority and responsibility wi business enterprise. It brings out clearly the organizatic various divisions and departments, and the relations whic between the various divisions, departments, and the indiv manning them. Organization charts can be of great ass also in planning the set-up of new concerns and in reorga old ones. A typical organization chart of a manufacturin pany, suggested by Cornell ("Industrial Organization and agement"), is shown on the following page.

Typical Organization Chart of a Manufacturing Company



ORGANIZATION MANUAL OF A BUSINESS

The organization manual may be defined as a manual of the rules and regulations governing the relationships of its personnel. There are two classes of manuals:

1. The policy manual which contains general information regarding the company as a whole.
2. The department write-up which applies only to a given department and serves as the specifications for the scope of the department, its function and duties. Such a write-up is an important factor in organization work and should be made for each department.

   The following gives an idea of what should be included in the latter type of manual:
   - (a) Concise statement or description of the function and its scope.
   - (b) Name and location of the department.
   - (c) Title of the department head.
   - (d) General duties of the department.
   - (e) Specific duties of the head of the department.
   - (f) Opportunities of service—with other departments and with the company as a whole
   - (g) A list of the divisions of the department.
   - (h) For each division listed should be given name, function, title of division head, duties of the division and specific duties of the head of the division, opportunities of service and a list of the sections in the division. When necessary, each section may be similarly treated.

MANUFACTURING COSTS—TYPES OF ACCOUNTING SYSTEMS

Definition of Cost Accounting.—In a broad sense any system of accounting that attempts to determine the cost of a unit of output, operation, function, or other unit of cost is cost accounting. The elements composing manufacturing cost are:

1. Direct material costs—used directly in producing the product and therefore directly chargeable to a specific unit of the product.
2. Direct labor costs—chargeable directly to the specific cost unit.
3. Manufacturing overhead, burden, or expense—incurred for the productive process as a whole and chargeable to cost units only indirectly, on some more or less arbitrary basis.

Various systems of cost accounting as described in the "Accountants' Handbook" are as follows:

Job Order Cost System.—This method of cost accounting is found in companies doing special work or manufacturing to order, as contractors, machine shops, and foundries. With the use of this system an order number is assigned to a particular job, to which is charged all materials used in the job, the direct labor collected from time tickets, and the overhead distributed on a selected basis. All the costs of manufacturing the job are thus brought together in one place, and their total divided by the number of units in the job gives the unit cost. The same principle applies to repair work or any custom-made articles.

Class Cost System.—This method of cost finding is of relatively restricted use. It assumes that the product having similar costs but varying according to some common factor can be grouped into classes, and the cost of the class apportioned to the units on the basis of this common factor. It is similar to the job order method where a class of products is taken as the job or order. In some foundries, for example, castings of like weights cost practically the same. Such industries find it much less expensive and practically as accurate, to use the class in lieu of the job order system.

Operation Cost System.—This system involves calculating the costs of performing certain operations through which much of the product passes. By adding to the material cost of the product the costs of the several operations through which it passes, the total cost of the completed product can be calculated. An advantage of this system is the despatch with which it can be applied and its value in estimating new work. It assumes that all units passing through the same operation cost the same, the average cost.

Process Cost System.—This system is used when the product is manufactured as a result of a sequence of continuous operations in which it is not handled in separate lots but is intermingled in such a way that different lots cannot be distinguished. The system differs materially from the other methods. It does not deal with a specific order or quantity, as does the job order method; it is not a combination of different items into a class as in the class

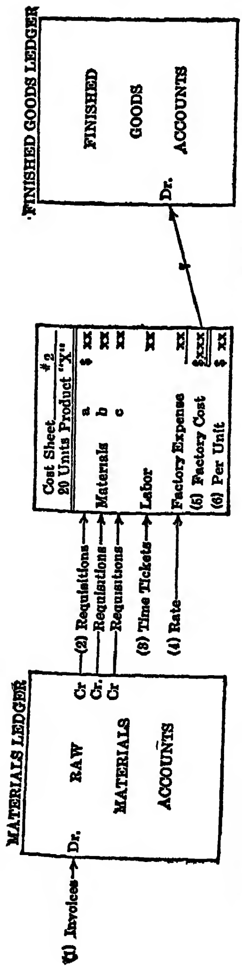
cost method; nor does it yield the cost of any individual operation as in the case of the operation cost method. It involves the combination into a "process" of a number of operations, none of which are separately measurable. The process stops for cost and measurement purposes at the first point where measurement is possible. In industries such as oil refining, paper manufacture, and by-product industries generally, where the product goes through a number of processes in which all units are similarly treated and are not separately distinguishable after each process, this method of costing is applicable. The classification of costs into prime and indirect costs has very little value under this method of costing.

FACTORY PRODUCTION COST—PROCEDURE IN COMPILING

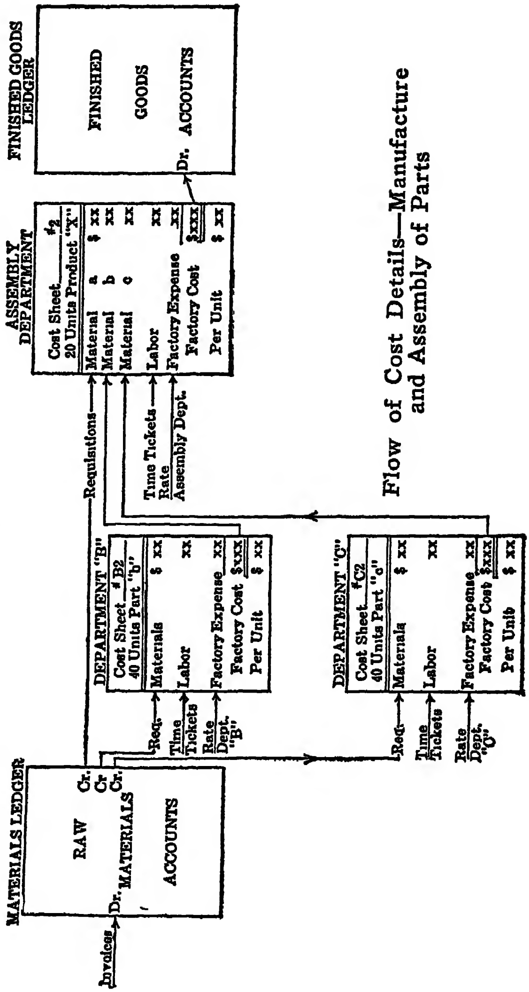
Compiling Cost of Production—Simple Assembly Product. —First form on page 242 diagrams the method of compiling cost of a simple assembly product. It is assumed that parts "a," "b," and "c" are purchased outside and placed in raw material stores until needed for production. After a lot has gone through the various processes of assembly, the product is placed in finished goods warehouse pending sale.

The diagram, taken from Gillespie, "Introductory Cost Accounting," shows that the cost "flows" from raw materials accounts (on the left) to finished goods accounts (on the right). This flow is analagous to the movement of the physical materials from raw materials stores through the various operations of the factory and finally to the finished goods warehouse. The diagram illustrates the following procedure:

1. Record cost of raw materials received in materials ledger. This ledger contains a card or account for each type of material received. The appropriate ones are charges for the cost of quantities of materials received.
2. Draw requisitions as materials are required for lots of product being manufactured. Requisitions show (a) description and quantity of materials needed, (b) cost, and (c) the number of the job upon which they are to be used. After the materials have been issued, credit materials accounts and charge the cost sheet for the cost of materials as shown by requisition.



Flow of Cost Details—Simple Assembly Product



Flow of Cost Details—Manufacture and Assembly of Parts

3. Record on time tickets number of hours which each (direct) worker spends on each job, day by day. Apply rates of pay to determine the cost of the labor. Enter the amount chargeable to each job on its cost sheet.
4. Apply factory expense by means of the predetermined rate (or rates). Hours spent upon the job multiplied by factory expense rate—factory expense applicable to the job.
5. Determine factory cost by adding all charges for materials, labor, and factory expense accumulated on the cost sheet.
6. Compute the unit cost for the lot. Unit cost = factory cost ÷ number of units produced.
7. Record factory cost of the lot in the finished goods ledger. This ledger is similar in arrangement to the materials ledger. It contains an account for each type of goods manufactured. The appropriate account is charged for cost of the completed lot.

Compiling Costs—Manufacture of Parts and Immediate Assembly.—Assume that the factory produces parts "b" and "c" as required for immediate assembly, the former in Department "B" and the latter in Department "C." Part "a" is purchased outside and stored until needed. The second diagram opposite illustrates the arrangement of the cost sheets.

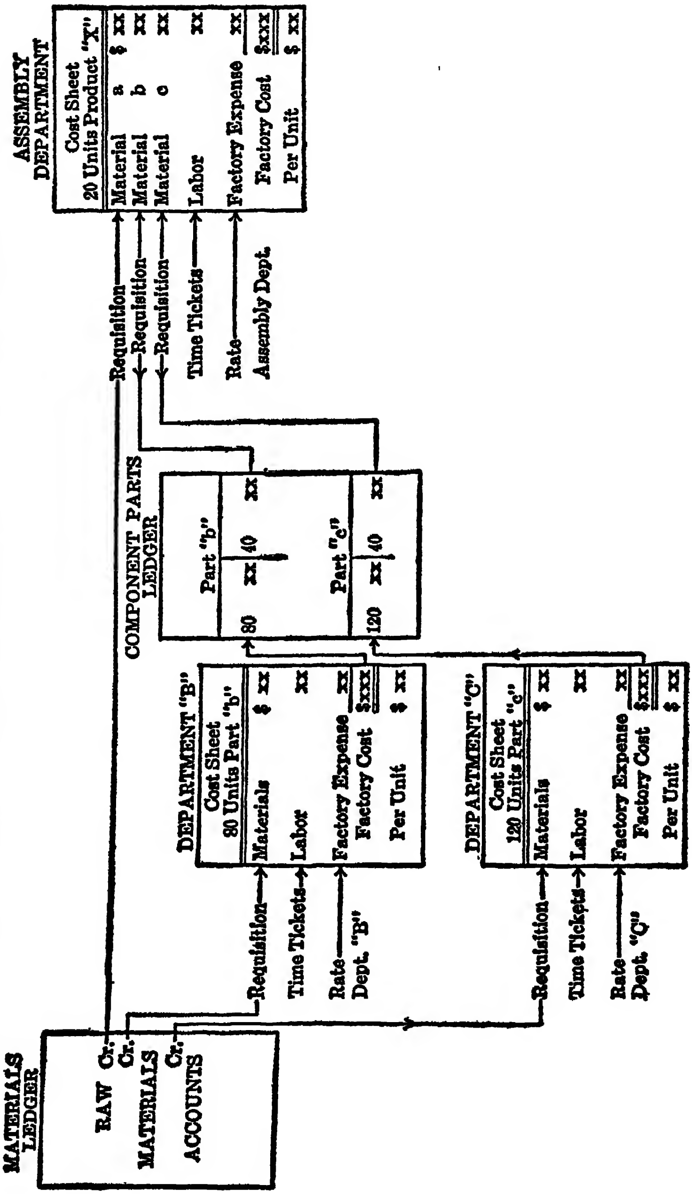
When a lot of 20 units of product is to be manufactured, Department "B" is instructed (by production order) to produce 40 units of "b" and Department "C" to make 40 units of "c." A parts cost sheet is set up for each of these departmental orders. (See cost sheet for parts "b" and cost sheet for part "c" below.)

The parts are to be delivered to the assembly department, which is instructed to assemble them into 20 units of the product "X." An assembly cost sheet is drawn to compile cost of assembly.

This diagram also shows that—

1. Parts "b" and "c" are costed as separate products: the cost sheet for each is charged for its own materials, labor, and factory expense. Factory expense rate for part "b" is based upon factory expense charged to Department "B"; rate for part "c" is based upon that charged to Department "C."
2. An assembly cost sheet is filled out, the cost of parts "b" and "c" being, however, taken from cost sheets B2 and C2, respectively. The cost of part "a," taken from raw materials stores, is obtained from requisitions. Labor cost is obtained from time tickets of the assembly department, and factory expense is based upon a rate for that department. When cost sheet is completed proper account in finished goods ledger is charged.

Flow of Cost Details—Parts Manufactured and Stored for Later Assembly



Compiling Costs—Parts Manufactured and Stored for Later Assembly.—Diagram on page 244 illustrates the arrangement of ledgers and cost sheets where the factory buys part "a" outside and produces parts "b" and "c," storing all until required for production. A component parts ledger is maintained to show the value of parts on hand at a given time. This ledger contains an account for each part being manufactured. As quantities of parts "b" and "c" are finished, the cost sheets are completed and the appropriate component parts accounts are charged.

When a quantity of the major product (Product "X") is being assembled, an assembly production order is issued, and an assembly cost sheet is prepared. This is charged with (1) cost of part "a" taken from raw materials stores, (2) cost of parts "b" and "c" taken from component parts stores, (3) labor shown by assembly department time tickets, and (4) factory expense by assembly department rate.

COST SHEET IN FACTORY ACCOUNTING

The cost sheet is a detailed record on which the costs, including distributed manufacturing expense, incurred in a particular cost unit, are accumulated. Separate cost sheets may be issued for each department in which the work is to be fabricated, or a single production cost sheet may be used for the entire cost of the job

Form of Cost Sheet

PRODUCTION ORDER (COST SHEET) ORDER NO.__________

CUSTOMER________________________DATE REC'D__________

DESCRIPTION________________________DATE WANTED__________

DIRECT LABOR COST (DETAILS)												SUMMARY OF COST		
DEPT.						DEPT						DIRECT MATERIAL	ITEMS	TOTAL
DATE	CLOCK NO.	KIND WORK	NO UNITS	TIME	COST	DATE	CLOCK NO	KIND WORK	NO UNITS	TIME	COST	KIND REQ		
												KIND REQ.		
												KIND REQ.		
												KIND REQ		
												DIRECT LABOR		
												DEPT. HRS. @		
												DEPT " @		
												DEPT " @		
												DEPT " @		
DEPT						DEPT.						APPLIED MANUFACTURING EXP.		
												DEPT HRS. @		
												DEPT " @		
												DEPT " @		
												DEPT " @		
												COST TO MANUFACTURE		
												SELL. AND ADMIN EXPENSE		
												COST TO MAKE AND SELL		
												PROFIT OR LOSS		
												SALES PRICE		

in the case of the job order cost system, the costs being separated in the sheet by departments as shown below. Space is provided in each case for the different cost elements.

Where process, class, or operation cost systems are employed, the cost sheets are set up by department, class of production, or operation rather than by specific lot of product. Separate cost sheets are used for each department, class, or operation, usually with provision for separation of the manufacturing elements.

FACTORY OVERHEAD EXPENSE—PROCEDURE IN COMPILING

Factory expense is applied to completed cost sheets by means of a predetermined rate. This is necessary because it is impracticable to charge the various jobs for specific items of factory expense such as power or depreciation on machinery. In practice, factory expense rates for a given month may be calculated at the beginning of the month, on the basis of estimated factory expenses. As lots of production are completed during the month, the estimated rates are applied to the cost sheets. At the same time, it is necessary to keep track of factory expense actually incurred by the factory. The management must know whether it is incurring too much (actual) factory expense. There are thus two phases to accounting for factory expense: (1) applying estimated factory expense to jobs as they are completed during the month and (2) compiling actual factory expense incurred during the month, i.e., rent paid, depreciation accrued, etc.

Authority for incurring actual factory expense is indicated by means of standing orders. These are similar to production orders in that the latter are authority to produce goods, whereas standing orders permit expenditure for such items as rent and repairs to machinery. The charges incurred on standing orders are compiled in accounts bearing the numbers of the standing orders. Thus, rent might be charged to Standing Order #103, depreciation to SO #104, and repairs to machinery to SO #105. A given set of standing order numbers ordinarily suffices as long as production is carried on. This is apparent since most items of factory expense are incurred continually.

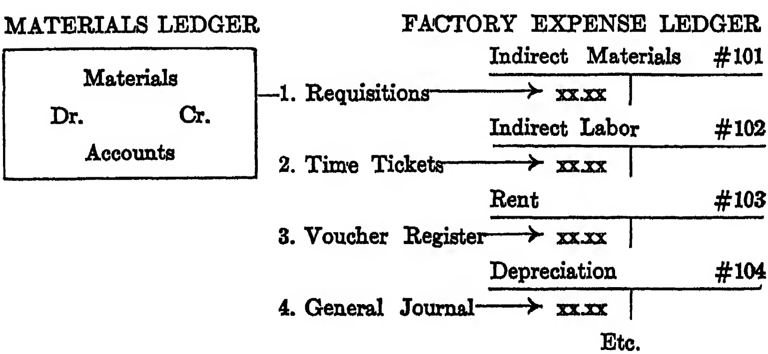
To compile actual factory expense, a factory expense ledger is maintained. This contains an account for each standing order, as:

(a) Indirect material
(b) Indirect labor
(c) Various expenses, as power and depreciation.

The form below illustrates the general routine of charging these accounts:

1. Issue indirect materials from the storerooms on requisitions, using the same form as for direct materials. (Note standing order number instead of cost sheet number.) Credit the individual materials accounts in detail for the various items issued day by day, and charge standing orders with total of indirect materials used during the month.
2. Record indirect labor time on time tickets. Enter rates of pay and determine indirect labor cost. Compile total cost for each pay period and charge the appropriate standing order in the factory expense ledger.
3. Record indirect expense involving cash outlays to production (as rent paid monthly) in the voucher register on date incurred. Post such amounts to appropriate accounts in the factory expense ledger.
4. Enter indirect expenses which do not represent immediate cash outlay (as depreciation and accrued taxes) in the general journal month by month, and post to appropriate accounts in the factory expense ledger.

Sources of Actual Factory Expense Charges



MANUFACTURING OVERHEAD COSTS—METHODS OF APPLICATION

Manufacturing overhead comprises those expense charges which are necessary to the productive process as a whole, but are not especially incurred for any one unit of the product. They must be distributed to the product on some basis in job order cost accounting.

The bases in most general use are as follows:

1. Material cost
2. Direct labor cost
3. Total prime cost
4. Direct labor hours
5. Machine hours
6. Blanket rate

Direct-Material-Cost Base.—The theory underlying the direct-material-cost basis is that the overhead is incurred in proportion to the cost of the material used in production. This basis may not be inaccurate where the material cost is the major cost and is fairly constant in amount. The principal argument in support of it, however, is that it is fairly simple to determine and easily applied.

Direct-Labor-Cost Base.—In order to use the direct labor cost as a basis for distributing overhead, the labor cost must be fairly uniform in amount and constant for all productive activity. The existence of differences in wage rates not based on relative differences in skill as well as the fact that many of the overhead charges are a function of time rather than of other factors, militate against the use of this base. The fact that the direct labor cost is easily ascertained and applied is the strongest argument in favor of this base.

Direct-Labor-Hours Base.—This method assumes that manufacturing overhead is incurred as a function of time rather than cost and that labor time is the dominating factor in the productive process. With the advent of automatic machinery, this base is becoming less accurate for general use and is falling into disuse. In departments where automatic machines and hand work are combined, it is a poor base.

Machine-Hour Base.—As with the labor-hour base, this method of apportioning the overhead assumes that manufacturing expenses are incurred as a function of time rather than as a func-

tion of cost. Where machine work is the principal type of work, a department composed of similar machines can logically use such a base.

Blanket Rate Method.—This method consists in applying a blanket rate to cover the overhead of the entire plant. The rate is calculated from past experience and may be changed from time to time to allow for changing proportions of overhead to other costs. The rate is generally calculated either on a cost or a time basis, or a combination of the two.

COST OF GOODS MANUFACTURED

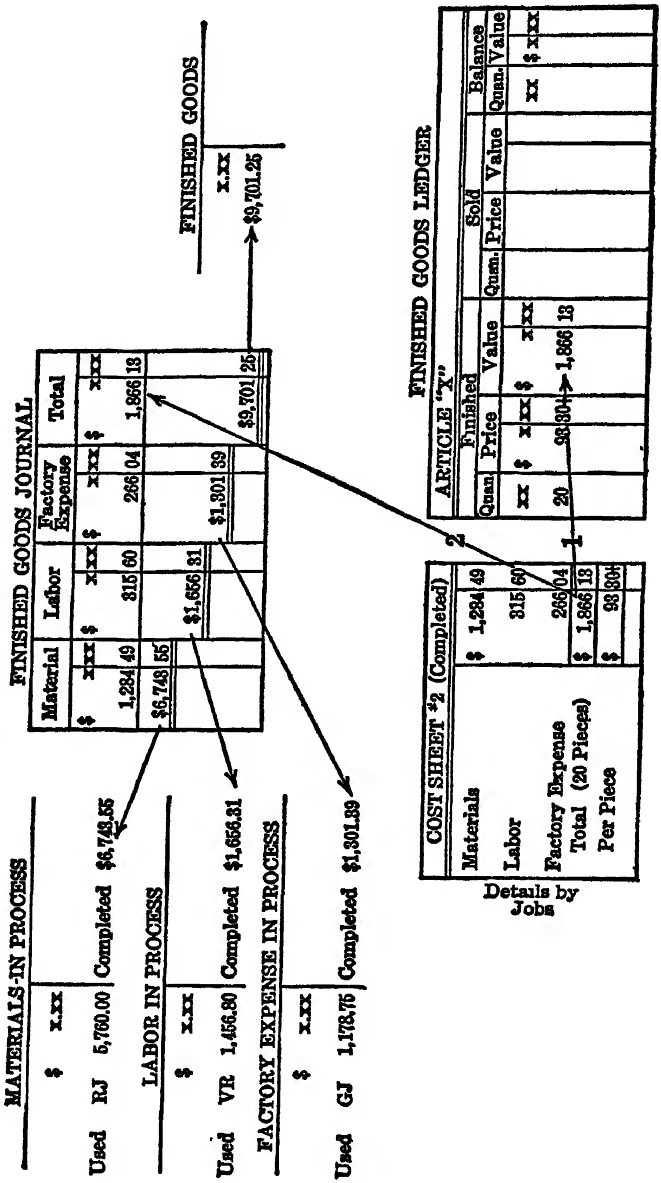
After factory expense has been applied to a cost sheet, material, labor and factory expense are entered in the summary section of the cost sheet and added to determine factory cost. The cost sheet is then "complete." It shows the cost value of a completed lot of goods which have been moved from the production floors. The routine of recording cost of finished goods, as explained in Gillespie, "Introductory Cost Accounting," is illustrated below.

The steps indicated by the chart are as follows:

1. Enter each completed cost sheet in the finished goods ledger. This ledger is similar in arrangement to the materials ledger. There is a card or account for each type of goods stocked. Each of these is charged for the cost of its type of goods completed, and credited with the cost of its type sold.
2. Enter the cost sheet in the finished goods journal. This journal is a medium for crediting the work in process accounts and charging finished goods for the cost of goods manufactured during the month. It compiles the cost according to (1) direct material, (2) direct labor, (3) factory expense, (4) total cost. The following page (Gillespie, "Introductory Cost Accounting") shows a finished goods journal with cost sheet #2 entered.
3. Post the finished goods journal to the ledger. At the end of each month columns of the finished goods journal are totaled, cross-footed, and posted to the general ledger. The posting for the journal illustrated is—

Finished Goods	$9,701.25	
Materials in Process..........................		$6,743.55
Labor in Process		1,656.31
Factory Expense in Process.......		1,301.39

Flow of Cost of Finished Goods



COST OF MANUFACTURE AND GOODS SOLD STATEMENT

The statement of cost of manufacture and goods sold is an analysis of the cost of manufacturing the goods sold during the period covered by the statement, and is prepared in support of the cost-of-goods-sold item in a condensed profit and loss statement. In more or less condensed form this manufacturing statement is at times included in the published form of profit and loss statement.

The statement may assume various arrangements, but they are all based on the same principle as exemplified in the cost of goods sold statement of a merchandising concern, an example of which is the following:

Opening inventory, January 1, 19–	$500,000
Purchases	400,000
Total goods to be accounted for	900,000
Less closing inventory, December 31, 19–.........	450,000
Cost of goods sold..............................	$350,000

The only difference as between the cost of goods sold statement of a manufacturing and that of a merchandising concern is that in a manufacturing concern the inventories consist of materials and supplies, goods in process, and finished goods, and the purchases include cost of labor and factory expense, as well as the cost of materials and supplies.

The following page shows one form of the manufacturing statement. The statement actually consists of two sections, the first concluding with the Cost of Goods Manufactured, and the second with Costs of Goods Sold. In organizations using highly developed cost methods, the cost of goods manufactured and cost of goods sold is obtained directly from the records instead of by the inventory methods as discussed above. But as errors creep into the operation of every cost system and unrecorded losses are bound to occur, physical inventories must be taken as a check on the records.

The form of manufacturing statement illustrated on the following page gives the costs for the organization as a whole. For purposes of internal control other statements may be prepared to show the costs for each plant, department, or product.

THE BLANK MANUFACTURING COMPANY
COST OF GOODS SOLD
For the Year Ended December 31, 19–

Inventories, January 1, 19–:		
Raw Materials and Supplies		$ 400,000
Work in Process		100,000
		500,000
Material Purchases		638,000
Direct Labor		1,275,000
Factory Expenses:		
Non-productive Labor and Material	$200,000	
Superintendents' and Assistants' Salaries	150,000	
Clerk's Salaries and Supplies	125,000	
Light, Heat, Power, and Water	200,000	
Repairs	250,000	
Small Tool Expense	160,000	
Selecting and Handling	85,000	
Insurance	30,000	
Royalties	115,000	
Experimental	65,000	
Laboratory	20,000	
Freight and Cartage Inward	2,000	
Property Taxes (portion applicable to assets used in manufacturing)	30,000	
Provision for Depreciation	500,000	
Amortization of Patents and Patent Expense	25,000	
Miscellaneous	40,000	1,997,000
Less, Inventories, December 31, 19–:		
Raw Materials and Supplies	350,000	
Work in Process	75,000	425,000
Cost of Goods Manufactured		3,985,000
Add:		
Decrease in Finished Goods:		
Inventory, January 1, 19–	900,000	
Inventory, December 31, 19–	700,000	200,000
Cost of Goods Sold		$4,185,000

STANDARD COST ACCOUNTING

Standard Costs Defined.—In certain types of business it is the practice to estimate the cost of production in advance, and to use such estimates as the basis for selling prices. Sometimes, the estimated cost of production for a given month is incorporated in the accounts in such a way that it may be compared with the actual cost for the month. Materials in Process account is charged with the actual cost of materials used and credited with (1) esti-

mated material cost of goods completed and (2) estimated material cost of goods in process at closing. If the actual cost of production of the month is the same as the estimated cost, credits to materials in process equal debits. If actual cost is greater than estimated, there is a debit balance; if actual is less than estimated, there is a credit balance. In any event, the "variation," as the balance or difference is called, indicates the difference between expected performance and actual performance as regards materials. Variations in labor and factory expense are likewise determined.

A similar principle of comparison may be used in businesses other than those which manufacture to order. Instead of making the estimate mainly for setting selling prices, it may be drafted with a view to showing what the factory should accomplish. The predetermined costs thus become a standard performance. These "standard costs," as they are called, may be recorded in the accounts to develop the variation between actual cost and standard cost period by period. The accounts thus provide formal record of the amount by which actual performance was different from what might be termed the goal.

Industries with Standardized Products.—Cost standards are most readily established in those industries where the product is standardized, or where steps are under way to make it so. "Standardized product" means that each unit of a particular part is made according to a regular procedure and according to set specifications, and that the various parts are brought together according to an established routine. Automobiles, certain machine and hand tools, and chemical products are examples of standardized products. Since there should be no variations in the parts of the product, or in the method of producing them, it is possible to determine what any given part or operation should cost, i.e., to determine the standard cost.

DISTRIBUTION COST ACCOUNTING

Direct and Indirect Costs.—To determine the cost of distributing a given product, or of distributing all products in a given territory, it is necessary to find some means of allocating the various expense items to the product or territory in question. The performance of each distribution function gives rise to certain

costs, and it becomes necessary to find the cost of each function in respect to the product, territory, or other basis according to which costs are being collected.

As in the case of production cost accounting, the various cost elements are assigned in varying ways to the item being costed. Certain charges bear a clear relationship to certain distinct selling activities, while others are of a more general character and consequently more difficult to allocate properly. For purposes of allocation, expense items may be divided into three groups thus:

1. Direct costs—that is, items of expense which apply directly to some one product, or territory, or customer (as the case may be), and to no others.
2. Semidirect costs—that is, items which relate in a general way to several different products or territories of customers, but which arise out of some measurable service function, and which may therefore be distributed in accordance with the amount of the service required for the item being costed.
3. Indirect costs—that is, items which have no ascertainable relationship with any one product, territory, customer, etc., as distinguished from any other, and which must therefore be apportioned over all items costed on a theoretical or arbitrary basis.

Example.—A specific example will serve to make clear the distinction between items of the various types. Suppose that a manufacturer of clothing is endeavoring to determine the cost of selling to customers who buy their entire requirements by mail, accounts being so small that no salesman is sent to call on them.

1. The cost of mail-order solicitation work is a direct cost of this particular business.
2. Costs of packing, shipping, billing, bookkeeping, credits, and collections are semidirect costs, in that they vary with the quantity of merchandise sold, the number of orders and number of items handled, the number of accounts carried, etc; in other words, the service required can be measured and the charge allocated accordingly.
3. The cost of general advertising of the entire clothing line in national magazines, trade publications, and elsewhere is an indirect cost, in that while it undoubtedly serves to develop the business in question, there is no means of measuring the amount of total advertising cost properly chargeable against the mail-order section as distinguished from other business, and an arbitrary apportionment is therefore necessary.

CORPORATE CONSOLIDATIONS AND MERGERS

In effecting various types of union with each other corporations adopt one of the following methods:

1. Purchase of assets as an entirety
2. Consolidation
3. Merger
4. Lease of assets as an entirety
5. Holding company

Purchase of Assets as an Entirety.—Among industrial concerns the common method of combination is by one corporation purchasing the entire assets of the other or others. As this virtually means the dissolution of the vendor companies, or at least their inability to perform the objects of their organization, the consent of their stockholders is necessary. Statutes usually require the consent of a stated majority as two-thirds of the outstanding stock or a simple majority. In the absence of such statute, however, the unanimous vote of the selling company's stockholders is necessary, except in cases when the concern is failing, in which instance consent of a majority of the stockholders suffices.

Consolidation.—Consolidation is a legal form of union or fusion of several corporations into a new corporation, or the so-called consolidated corporation, which not only takes over the properties and other assets of the several constituent companies, but also their rights, privileges, immunities, as well as their liabilities and obligations of whatever nature. The constituent companies become dissolved. Consolidation can only be effected by authority of an express statute, there being no such thing as common law consolidation or consolidation by charter provision. The precise nature of the consolidation depends upon the provisions of the statute under which it is effected. In a consolidation the consent of the stockholders of the consolidating corporations is required. Unless the statute prescribes a certain majority, unanimous consent is necessary. Consolidations have been the favorite mode of combining railroads. The great railroad systems have been chiefly effected by this method of union.

Merger.—Merger is but another form of consolidation, the only difference being that instead of a new company coming into being

one of the old companies succeeds to the assets, rights, privileges, immunities, liabilities, obligations, etc., of the other companies. Otherwise the same legal provisions apply to the merger as to the consolidation.

Lease of Assets.—In a lease of assets one corporation transfers its entire property to be used and operated by the lessee corporation, which in return obligates to pay a rental, which is commonly in form of guaranteeing interest on the lessor's indebtedness, bonded or otherwise, and a certain rate of dividends in its stock. Such intercorporate leases are subject to legal provisions similar to those of the sale of assets. They have been very common in the past among railroads and to a lesser extent among public utilities.

Holding Company.—A holding company is a corporation which holds stock in other companies for purposes of control and not mere investment. If its assets consist solely of its holdings of stocks and bonds, cash, and advances it may have made to the subsidiary companies, it is a pure holding company. A company may, however, combine the function of a holding concern with regular operations. Holding companies have reached their greatest development among the public utilities in which very often systems consist of a series of sub-holding companies.

RECAPITALIZATION AND RECLASSIFICATION OF CAPITAL STOCK

Definition of Terms.—The terms "recapitalization" and "reclassification" have general reference to readjustments of the capital stock usually of the going concern as opposed to capital stock readjustments of embarrassed concerns. Of the two terms, recapitalization has a somewhat broader connotation and embraces within its meaning not only reclassifications but also other capital changes, such as a change from par to no-par value, or the reverse, particularly when such change is combined with a split-up. Moreover, recapitalization has reference only to changes in the stock capitalization and not to any changes in the bonded debt.

The term reclassification in connection with capital stock, while also not used very strictly, generally speaking signifies altering

the rights, preferences, privileges, limitations, etc., of the several classes of stock composing the capital structure. It is a process of literally reclassifying the stock issues, or replacing the outstanding classes with new issues, and thus causing a rearrangement in the stock equities or interests.

Occasions for Reclassification.—Common reasons for reclassifying stock capitalization are the following:

1. To create a better medium or media for financing or for making new acquisitions by exchange of stock.
2. To recapitalize a closely held corporation in order to make a public distribution of its securities.
3. To simplify the capital structure.
4. To fund dividends in arrears on cumulative preferred stock.
5. To adjust burdensome provisions relating to the preferred issues.

STOCK SPLIT-UPS

Stock split-ups consist of increasing the number of shares without adding to the assets, as in a sale of additional shares, and without capitalizing any portion of the surplus, as in a stock dividend. In the case of stock with par value this is effected by reducing the par value in proportion to the increase in the number of shares, so as to maintain the same aggregate par value of the shares as before the increase in their number. Where shares have no par value, it is only necessary to increase the number of shares. The effect of a stock split-up is merely to reduce the size of a share, or its proportion of the stockholders' total equity which it represents. The principal purpose for stock split-ups is to reduce the market value of shares when it is high and bring it within reach of a greater number of investors, thus giving greater stability to the market value and at the same time interesting more of the investing public in the enterprise.

RECEIVERS AND CORPORATE PROPERTY

Statutory and Equity Receivers.—Receivers are appointed by courts to assume, under the court's supervision, temporary control and management of properties which are in litigation. They are either statutory or equity receivers. Statutory receivers are those

appointed under the authority of a specific statutory provision. Equity receivers are those appointed by courts on their own authority when sitting as courts of equity.

Power of Equity Courts to Appoint Receivers.—There are four general classes of cases in which an equity court will appoint a receiver:

1. When there is no person competent by reason of interest, or otherwise, to take the custody and management of the property which constitutes the subject matter of litigation.
2. When, although all of the parties may be equally entitled to possession and control of the property, it is not proper that any one of them should have possession or control of it.
3. When the person holding the property occupies a position of trust relation and is violating his fiduciary duties.
4. When after the rendition of a decree, the ordinary processes of the court cannot carry the judgment or decree into effect.

Receiver's Authority.—An equity or chancery receiver derives his authority from the court which appointed him and not from the parties at whose instance his appointment was made. He acts in behalf of no particular interest but guards the rights of all.

His first duty is to preserve during the trial, which is to determine their disposition, the property and its income, which he has taken into his custody and which is the subject of litigation, from deterioration, waste, loss, destruction or depreciation in value. His second main duty is to administer the property and distribute it or dispose of it according to the rights of the parties to the suit, as ascertained and determined by the decree of the court.

FORECLOSURE SALES ON DEFAULT OF BOND ISSUES

Foreclosure Decree and Confirmation.—Foreclosure sales are sales by judicial decree of property securing a mortgage upon which default has been made, usually in payment of the interest or the principal of the loan. Foreclosure is a legal proceeding whereby the court determines the validity of the mortgage, and the amount of the claims under it, and orders the property to be sold in accordance with the conditions it lays down in its decree. The decree of foreclosure is only made after a hearing is held before the court and all parties in interest have an opportunity

to object to the claims of the mortgagee bringing the foreclosure suit. The property is advertised for sale at public auction, and is sold either by a receiver, if one is already in charge of the property, or a special master or referee may be appointed by the court to conduct the sale. When the sale has been made, the officer in charge reports to the court which reviews the general conditions of the sale, and if it finds them in accordance with its foreclosure decree, it confirms the sale. The proceeds of the sale are applied to pay the expenses of the sale and the foreclosure suit. Taxes and other public dues are paid next. The balance is applied to pay the mortgagee's claims.

"Upset" Price.—In large bond issues secured by a mortgage the court in its foreclosure decree fixes an "upset" price for the sale of the property which is the minimum price at which the receiver or special master may dispose of property. The property is usually bought in by representatives of the bondholders, acting under the authority of a so-called "plan and agreement of reorganization," who surrender the bonds they hold for the bulk of the consideration given in payment for the property. Those bondholders who have not elected to participate in the plan of reorganization are paid off in cash, their pro rata share being determined by the court on the basis of the price received for the property. The representatives of the bondholders, who now own the property, organize a new company, to which they turn over the property in return for its securities. These are distributed to the former bondholders and others, in accordance with whatever plan of reorganization has been settled upon.

CORPORATE REORGANIZATIONS

The term "reorganization" is loosely used to cover reorganizations properly so called and also such corporate changes as are involved in consolidations and mergers and sale of assets as an entirety. In the stricter sense it refers to transactions whereby an existing corporation is dissolved and is succeeded by a new and distinct corporation, organized for the prime purpose of taking over its property and contractual rights, and assuming its liabilities and obligations. While legally the old and the new corpora-

tion are two distinct entities, they are substantially one so far as the identity of its stockholders, creditors, directors, and officers are concerned.

Reorganization of Solvent Concerns.—The foregoing description applies more particularly to reorganizations of going, solvent concerns, which are undertaken very frequently with a view to reincorporation under the laws of another state. A common method followed in this type of reorganization is for the old corporation to transfer its assets to the new corporation and accept in payment the stock of the corporation, which is then exchanged in liquidation for its own outstanding stock, the shareholders in the old corporation thus becoming shareholders in the new. The new company also assumes the corporation's liabilities.

Reorganization of Failed Concern.—The term reorganization also refers to the process by which failed concerns are succeeded by newly organized companies. Such reorganizations occur usually in connection with concerns with mortgage bonds outstanding. The bondholders acting through a representative committee and the trustee under the indenture have the mortgage foreclosed and the mortgaged property sold. As the courts permit them to offer the defaulted bonds in payment of the property, they are usually the highest bidders and secure possession of the property. They thereupon organize a new company with whatever stock and bond capitalization best suits the circumstances, and sell the property to it in exchange for the securities. These they distribute among themselves and other classes of security holders of the old company on whatever terms they feel necessary to make the new company a financial success.

BANKRUPTCY

Bankruptcy covers the procedure whereby the assets of an insolvent person, known as the bankrupt, are taken, sold, and the proceeds distributed equitably among his creditors, and he is discharged from the unpaid balance of his debts. At present all bankruptcy proceedings in the United States come under the National Bankruptcy Act of 1898 and amendments A person is deemed insolvent whenever the aggregate of his property, ex-

clusive of any which he may have fraudently transferred, concealed, or removed, shall not at a fair valuation be sufficient in amount to pay his debts. The "fair value" is usually interpreted to mean going concern value or fair market value, and does not mean the scrap value of a bankrupt firm's property.

Who May Be a Bankrupt.—Any person, except a municipal, railroad, insurance, or banking corporation, may become a voluntary bankrupt, i.e., may voluntarily file a petition with a court having jurisdiction to be adjudged a bankrupt and to be given the benefits of the bankruptcy act.

Any natural person except a wage earner or a person engaged chiefly in farming, any unincorporated company, any moneyed, business, or commercial corporation, except a municipal, railroad, insurance, or banking corporation, owing debts to the amount of one thousand dollars or over, may be adjudged an involuntary bankrupt. In involuntary proceedings the petition is filed by the creditors of the insolvent person or firm. The occupation at the time an act of bankruptcy is committed rather than at the time the petition is filed is the determining factor in deciding whether or not one is exempt from involuntary proceedings.

Acts of Bankruptcy.—In involuntary bankrupt proceedings it is necessary to allege in the petition and to be able to prove that an "act of bankruptcy" was committed within the four months just preceding the filing of the petition. A person has committed an act of bankruptcy if he has:

1. Conveyed, transferred, or removed, or permitted to be concealed or removed, any part of his property with intent to hinder, delay, or defraud any of his creditors A bona fide sale of property at a low price is not in itself a fraudulent transfer. There must be a transfer for no value, an agreement to return the property at a later time, or other actual intent to hinder or defeat creditors
2. Transferred, while insolvent, any portion of his property to one or more of his creditors with intent to prefer such creditor over his other creditors. Cash transactions are not preferences. If the debtor can show that he did not know he was insolvent he may be able to prove lack of intention to prefer one creditor over another.

3. Suffered or permitted, while insolvent, any creditor to obtain a preference through legal proceedings, and not having at least five days before a sale or final disposition of any property affected by such preference vacated or discharged such preference.
4. Suffered or permitted while insolvent any creditor to obtain through legal proceedings any levy, attachment, judgment, or other lien, and not having vacated or discharged the same within 30 days from date such levy, attachment, judgment, or other lien was obtained.
5. Made a general assignment for the benefit of his creditors, or, being insolvent, applied for a receiver or trustee for his property, or because of insolvency a receiver or trustee has been put in charge of his property under the laws of a state, of a territory, or of the United States.
6. Admitted in writing his inability to pay his debts and his willingness to be adjudged a bankrupt on that ground.

ASSIGNMENT FOR BENEFIT OF CREDITORS

An insolvent debtor may transfer title to his property to an assignee who liquidates the property, pays off the debts, and returns any residue of property to the debtor. In order to be valid the assignment must not hinder or delay the creditors beyond the time reasonably necessary to carry out its purpose, and it must not give the assignee power to decide what debts shall be paid or to give preference to certain creditors.

In order to be effective the assignment must have the consent of the creditors. Dissenting creditors may petition for bankruptcy proceedings, and, in some states, may seize the assigned property.

An assignee should be properly authorized to pay claims in such order and priority as they are entitled to be paid by law. He is responsible for reasonable care and prudence in selecting his agents and holding them to strict responsibility for their acts, but he is not responsible for their neglect or default. The assignment may provide for the filing and proving of claims with the assignee. The assignee is entitled to the compensation fixed by statute, or to the amount fixed by the terms of the assignment if less than the statutory amount or if there is no statutory provision. The assignee must provide for the payment of expenses incidental to the assignment but must not pay the expenses of the debtor in connection with suits brought against him by creditors.

BANK LOANS AND DISCOUNTS

A bank loan, as the term is used by bankers, signifies an advance made by a bank which is evidenced by an interest-bearing promissory note. The term "bank discount" is applied to non-interest-bearing promissory notes having specified maturities, which are purchased by banks for their face value less interest for the unexpired time.

Bank loans are classified according to their duration as demand and time loans. Demand loans, also known as call loans, may be terminated at any time by either lender or borrower. They are in effect day-to-day loans. Time loans run for a stated period. The majority of bank loans are time loans, including the discounts.

Bank loans are also single-name and double-name, and secured and unsecured. A single-name paper or promissory note bears the name of the maker of it only. A large majority of the loans made by banks in the United States to business borrowers are on single-name paper. Double-name paper are promissory notes bearing an indorsement as well as the name of the maker. Notes receivable discounted at a bank become double-name paper inasmuch as they must be indorsed before the bank will discount them. Secured loans are those secured by bills of lading, warehouse receipts, stocks or bonds, or mortgage, or some other form of security.

The following list sets forth various classifications of bank loans:

A. As to Maturity:

1. Demand or call loans:
    - (a) Direct loans on promissory notes
2. Time:
    - (a) Discounted paper
    - (b) Direct loans on promissory notes

B. As to Obligation of Parties:

1. Single-name paper—promissory notes
2. Double name:
    - (a) Accommodation paper
    - (b) Discounted notes of customers (receivables)
    - (c) Acceptances:
        - (1) Bankers'
        - (2) Trade

C. As to Security:

1. Unsecured
2. Secured by collateral consisting of:
   - (a) Listed securities
   - (b) Unlisted securities
   - (c) Bills of lading
   - (d) Warehouse receipts
   - (e) Trust receipts
   - (f) Bills receivable
   - (g) Accounts receivable
   - (h) Chattels
   - (i) Mortgages on real estate
   - (j) Mortgages on farms
   - (k) Other collateral

D. As to Agency Negotiating Loan:

1. Banks
2. Commercial paper brokers or dealers
3. Finance companies, discount companies, etc.
4. Acceptance corporations
5. Other business firms
6. Individuals

E. As to Use of Proceeds:

1. Financing short-time operations in producing, purchasing, carrying, or marketing goods in one or more steps of the process of production, manufacture, or distribution
2. Carrying or trading in stocks, bonds, or other investment securities, except bonds and notes of the United States Government.
3. Carrying or trading in bonds or notes of the United States Government.
4. Facilitate commercial transactions.

ESTABLISHING A LINE OF CREDIT WITH BANK

Line of Credit Defined.—A line of credit is a more or less informal agreement on the part of a bank to make loans to a business customer up to a stipulated total and in amounts as they will be required during a stated period, usually one year. The credit line should substantially be in excess of the maximum amount the borrower is likely to require, and it should be established well in advance of the time when it will actually be utilized. The line is granted with the understanding that the borrower will keep

the bank informed as to his financial condition and that it is subject to reduction or cancellation if the borrower's financial condition suffers a serious change for the worse.

Information Required by Banks.—When loans are required of banks financial managers should be prepared to furnish the following information:

1. Type of business—whether a sole proprietorship, a partnership, or a corporation.
2. The names of the owners or officers and their relation to the business.
3. Kind of business—whether trading, manufacturing, mining, or professional, and the kind of products in which it deals.
4. The latest available balance sheet and balance sheets for the preceding two or three years in the form desired by the bank.
5. Income statements for the past two or three years.
6. The average inventories carried, valued at cost or market, whichever is lower. The condition of the inventories and the manner of valuation are considered.
7. The amounts of notes and accounts receivable, classified as overdue, due, and not due.
8. A complete schedule of investments, showing last dividends or interest payments with dates thereof, present market value of securities and reasons for holding same.
9. A full statement of the amount of notes receivable, accounts receivable, and merchandise pledged to secure indebtedness.
10. Unusual balance sheet items—a full explanation of any unusual items on the balance sheet.
11. A statement showing when the liabilities of the borrower are greatest, that is, when the firm is likely to reach the peak of its borrowing operations.
12. The customers' methods of borrowing—whether or not they sell their paper in the open market, and if so, the frequency and amount of such borrowing. The line of credit they have at other banks and whether or not it is kept open.
13. A statement of the insurance carried on the assets and on the lives of important officials or executives of the company.
14. Whether the borrower has made adequate provisions for depreciation of assets, the method of handling it, the rates and the manner of computing it.
15. Whether property is mortgaged and all taxes are paid.
16. The policy of the borrower in disposing of the earnings of the business, whether or not such earnings are all paid out as dividends or whether a certain proportion is reinvested in the business.

17. An analysis of surplus indicating the profits for the current year and the proportion of the profits used for dividends, reserves of various kinds and what disposition has been made of the surplus account
18. Whether the business owns or rents its premises and whether the earnings of the company have been affected by favorable leases which are about to expire. For instance, low costs of production might be accounted for by a favorable long time lease of the factory.
19. A statement of any important construction or capital expenditures planned by the company and the means by which they will be financed
20. Other business interests of the owners or officers of the borrowing company.
21. Loans of officers—if loans are made to the company by its officers and directors or by the company to them.
22. The amounts due to or from subsidiary companies and for what purpose such subsidiaries are financed and whether or not they are self-supporting
23. Amount of contingent liabilities on discounted paper and other contingent claims.
24 Amount of purchase commitments and contracts for future delivery.
25. Any legal actions pending against borrower or any unsatisfied judgments.
26. The volume of unfilled orders on the books of the company and whether they are bona fide or are doubtful and are likely to be canceled.
27. The nature of the borrower's trade; whether they are selling largely to one customer, or small group of customers, or to a large trade group; also, the present financial condition of those customers.
28. Whether the products are diversified, or whether the company is dependent on marketing only one type of goods, and the relative degree of geographic distribution of the prospective borrowers' trade
29. The relation subsisting between labor and the management and the attitude which the company and its officers maintain toward labor
30. The periods of the year during which peak production will occur, or large inventories be carried, and the periods when the largest volume of sales and collections may reasonably be expected to take place.

MASSACHUSETTS TRUST AS A FORM OF BUSINESS ORGANIZATION

General Character.—A Massachusetts Trust, also known as "express trust," "business trust," or "common law trust," is a form of business organization in which a number of persons hold and manage property as trustees, corresponding to the directors of a corporation, for the benefit of others, the beneficiaries, who are in effect stockholders. The form of business organization became known as a Massachusetts Trust because it originated in Massachusetts, where until 1912 the corporation laws contained no provisions for the organization of real estate corporation and hence recourse was had to this trust form of organization. It is now used by a number of businesses other than real estate concerns.

Such trusts are created through the drafting and execution of a written instrument called "deed of trust," "declaration of trust," or "trust agreement," which describes the business to be conducted and defines the rights and liabilities of the trustees and beneficiaries. The ownership of the property is divided into two parts, the legal title being held by the trustees for the benefit of the beneficiaries' interest is represented by certificates or shares, generally called units of beneficial interest, which are similar to certificates of stock in a corporation. There may be several classes of common and preferred shares.

Essential Provisions of a Trust for Business Purposes.—The essential provisions of any express trust organized for business purposes are:

1. A deed or declaration of trust, drawn up to define the rights and powers of trustees and shareholders.
2. Two or more trustees who are authorized to take over and manage the capital, business, or other property supplied by the shareholders.
3. Shareholders who are beneficiaries and who receive transferable certificates representing their respective interests in the profits and in the property on dissolution.
4. Provisions for division of profits, appointment of trustees to fill vacancies, and for dissolution at termination of the trust.
5. Provisions that no liability is to attach to either trustees or shareholders, but only to the trust estate.

Essentials of Deed of Trust.—The deed of trust should set out the following essential information:

1. The trustees and the immediate beneficiaries must be designated, and provision must be made so that others desiring to be beneficiaries can come in and assist in making up the required amount of capital.
2. If any property is to be transferred to the trustees, or if they are to purchase any particular business or property, it must be designated and described.
3. The capital, if any, that is to be raised and paid over to the trustees must be specified, and its division into shares and the value thereof must be set forth. Both preferred and common shares may be prescribed.
4. The declaration must also state that the property acquired by the trustees is held in trust, and subject to the powers, limitations, and liabilities set forth in the instrument by which the trust is created.

JOINT STOCK COMPANY

Definition.—A joint stock company is a form of partnership in which the capital contributions of the partners are represented by transferable shares of stock. The holders of stock are partners and are held to the full liability of general partners. They are not, however, general agents of the organization as general partners are in an ordinary partnership.

This form of business is also similar to the corporate form in a number of ways. Death, insanity, or bankruptcy of a member has no effect on the continued existence of the company, neither has the withdrawal or transfer of membership. Each shareholder may sell or pledge his shares at any time but this does not relieve him of the liability for debts incurred while he was a shareholder.

FINANCE COMPANIES—VARIOUS TYPES

A finance company is one which purchases the receivables of a manufacturer or dealer who sells on the instalment plan, generally receiving a percentage of the purchase price (usually about 10%) down and an agreement for the payment of the balance in periodic instalments. This agreement may be sold to a finance company which generally advances about 80% of the unpaid balance to the dealer, 10% being retained as a commission and 10% as a

reserve or margin of safety. The reserve is returned to the dealer when the instalments are all paid. The dealer must guarantee the contracts. Finance companies, in purchasing accounts receivable, usually advance from 70% to 80% of the face amount of the accounts.

Finance companies may be classified as follows:

1. Buying or discounting commercial receivables which include accounts, notes, and acceptances.
2. Advancing funds to dealers to finance the purchase of automobiles from manufacturers or wholesalers.
3. Advancing funds to enable retail dealers to finance the sale of automobiles on the instalment plan.
4. Advancing funds to retail dealers to finance instalment sales of agricultural implements, books, electrical appliances, furniture, musical instruments, etc.
5. Advancing funds against merchandise.

BUILDING AND LOAN ASSOCIATIONS

The building and loan associations offer to people of small means an opportunity to invest their money in small instalments and the prospect of securing a home of their own. These associations are local in character, succeeding best where the members know each other and see the tangible property upon which they lend. They are organized in one of three forms: (1) the terminating plan, (2) the serial plan, and (3) the permanent plan. Under the terminating plan, the members subscribe all the stock at the opening meeting and are assumed to maintain an equal standing until the end. Members joining at a later date have to pay for their shares a price equal to the value of the original shares plus their undistributed earnings. Such an association expires automatically when the shares mature, unless it is started all over again. Under the serial plan, a new series of stock is issued at the beginning of each fiscal year or oftener. The association is chartered for a definite number of years and with a specific amount of stock, divided into series, issuable at beginning of each fiscal year. At the end of each year, the equitable withdrawal value is calculated for the outstanding series. The loans made are for the life of each series, and separate books are kept for each. Under the permanent plan, members subscribe for one or more shares of stock at any time, payments being made in stated sums at regular

intervals, at the convenience of the subscriber. These shares are credited at stated intervals with regular dividends. Deposits other than payments on instalment stock are invited through schemes of "paid-up stock," "special deposits," etc., and on these the depositor is paid a regular specified rate of interest. These associations create and maintain surplus funds to protect members and depositors.

SMALL LOAN AGENCIES

Small loan agencies are distinct from most other lenders in that their business is with consumers rather than producers. They may be divided according to the types of loans they make and the groups of people served as follows:

1. Industrial banks which lend on indorsements or collateral, and are not strictly limited by law or custom as to size of loan.
2. Credit unions organized by groups having some common interest. Members of such groups pool their savings which are then used for making loans either within or without the group.
3. Axias—similar to credit unions, but usually unchartered and unregulated. Generally established among foreign groups.
4. Pawnbrokers who lend small sums on personal property—usually jewelry or clothing—as collateral.
5. Personal finance companies, established under special state regulation, supervised by state banking departments and limited as to size of loan and rates charged. Loans are based on character and paying capacity, although chattel mortgages and wage assignments are taken.

BUSINESS CYCLE—ITS VARIOUS PHASES

The phases of the business cycle are generally presented as four in number: depression, revival, prosperity, and crisis. Following is a summary of the conditions existing during each of these periods.

Depression.—The conditions characterizing the close of this phase are as follows:

1. Prices are low.
2. Business costs are low.
   (a) Labor costs are low.
   (b) Interest charges and the cost of credit in general are relatively low.

(c) Managerial efficiency is high.
(d) Capital charges in fixing prices are low.
3. Profit margins are narrow.
4. Stocks of goods are low.
5. Cautious buying prevails.
6. Volume of production and trade is low.

Revival.—Significant developments during this phase are the following:

1. Increase in the volume of trade.
2. Revival of speculation in securities.
3. Increase in outside bank clearings and in debits to individual accounts outside of New York.
4. Increase in the volume of production.
5. Rise in commodity prices.
6. Increase in discount rates upon time loans.
7. Increase in interest rates upon long-term loans.

Prosperity.—During this phase there is an accumulation of stresses within the business system:

1. Increasing costs of doing business.
   (a) Increase in direct costs.
   (b) Increase in overhead charges.
   (c) Declining efficiency in business management.
   (d) Entry of high-cost producers into the market.
2. Stringency in the investment market.
3. Tension in the money markets.
4. Decline of prospective profits.
   (a) Overproduction.
   (b) Decrease in purchasing power of certain classes.
   (c) Accumulation of goods with slackening of consumer demand.
   (d) Undermining of business credit.

Crisis.—

1. Process of liquidation commences.
2. Stocks held on margin are sold.
3. Maintenance of solvency becomes prime aim of business.
4. General falling off of new orders.
5. Widespread cancellation of unfilled orders
6. Commodities are liquidated and commodity prices decline.
7. Rates on commercial paper reach their maximum.
8. Bank reserves reach their minimum.

BUSINESS BAROMETERS

There are available numerous business statistics by following which it is possible to keep in touch with current economic developments. Following are a number of such business barometers, classified under six main heads:

1. Measuring the Volume of Production:

(a) Agricultural:
- Cotton
- Wheat
- Corn
- Oats
- Barley

(b) Raw mineral:
- Bituminous coal
- Anthracite coal
- Crude petroleum
- Copper

(c) Industrial production:
- Pig iron
- Steel billets
- Unfilled orders of the U. S. Steel Corporation
- Cement
- Automobiles
- Electric power
- Consumption of raw cotton

(d) Building:
- Contracts awarded

Production figures should be supplemented by data relating to inventories. Such figures are available for certain of the series named above, notably cotton, wheat and petroleum.

2. Measuring the Volume of Trade:

(a) Domestic trade:
- Freight car loadings
- Sales of department stores, chain stores and mail order houses
- Wholesale trade (by Federal Reserve districts)
- Bank clearings outside New York
- Debits to individual accounts outside New York

Changes in the value of outside clearings and in the total of debits to individual accounts may be due either to an increase

in the volume of trade represented by such transactions, or to an increase in the price level. If prices should double, the volume of bank clearings necessary to transact the same actual amount of trade would be doubled. Accordingly, in the interpretation of such value figures it is essential that they should be deflated, that is, corrected for changes in the price level. When this has been done, it may be assumed that the remaining changes reflect actual fluctuations in the volume of trade To deflate such a series, it is necessary only that the actual value figures be divided by an appropriate index number of prices.

(b) Foreign trade:
  Merchandise imports
  Merchandise exports
  In using trade figures expressed in dollars, the problem of correcting for changes in the price level again arises, and the process of deflation described above is necessary.

3. Reflecting Price Changes:

(a) Prices of important commodities, such as wheat, corn, cotton, pig iron, bituminous coal, petroleum, etc.

(b) Index numbers of prices:
  Bradstreet's index of wholesale prices, by Dun & Bradstreet, Inc.
  Dun's index of wholesale prices, by Dun & Bradstreet, Inc.
  U. S. Bureau of Labor Statistics index of wholesale prices. A general index is published with separate index numbers of prices for the following commodity groups:

    Farm products
    Foods
    Hides and leather products
    Textile products
    Fuel and lighting
    Metals and metal products
    Building materials
    Chemicals and drugs
    House furnishing goods
    Miscellaneous

  U. S. Dept. of Agriculture index of farm prices
  U. S. Dept. of Agriculture index of prices of goods bought by farmers
  U. S. Bureau of Labor Statistics index of retail food prices
  U. S. Bureau of Labor Statistics index of the cost of living

4. Measuring Speculative Activity:

Prices of industrial stocks:

Index compiled by Standard Trade and Securities Service

Dow-Jones average of industrial stock prices

Shares traded on the New York Stock Exchange

New York bank clearings

Debits to individual accounts in New York banks

5. Depicting Financial Conditions:

Total loans and discounts, reporting member banks of the Federal Reserve System

Total bills on hand, Federal Reserve banks

Reserve ratio, Federal Reserve banks

Federal Reserve banks' discount rates

Call loan rate, New York

Discount rate, 60-90 day commercial paper

6. Measuring Business Profits and the Number of Business Failures:

Net earnings, U S. Steel Corp.

Dividend payments of industrial corporations

Number of business failures

100 SELECTED BOOKS ON BUSINESS SUBJECTS

Accounting, Auditing, Statement Analysis and Business Mathematics

Accountants' Handbook. *W. A. Paton, editor*
Principles of Accounting. *Roy B. Kester*
Advanced Accounting. *Roy B. Kester*
Accounting Applications. *Roy B. Kester*
Complete Accounting Course. By members of Faculty of Northwestern University
Management Through Accounts. *J. H. Bliss*
How to Understand Accounting. *Howard C. Greer*
Accounting. *Paul-Joseph Esquerré*
Corporation Accounting. *William T. Sunley* and *Paul W. Pinkerton*
Depreciation. *Earl A. Saliers*
Goodwill and Other Intangibles. *J. M. Yang*
Accounting by Machine Methods. *H. G. Schnackel* and *Henry C. Lang*
Analyzing Financial Statements. *Stephen Gilman*
How to Read a Financial Statement. *Herbert G. Stockwell*
How to Read a Profit and Loss Statement. *Herbert G. Stockwell*
Auditing—Theory and Practice. *Robert H. Montgomery*
Auditing Problems, With Solutions. *J. Hugh Jackson*
Accountants' Working Papers. *Leslie E. Palmer* and *William H. Bell*
Accountants' Reports. *William H. Bell*
Bank Audits and Examinations. *John I. Millet*
Hotel Accounting. *Ernest B. Horwath* and *Louis Toth*
Contractors' Accounting Practice. *William M. Affelder*
Casualty Insurance Accounting. *Robert S. Hull*
Estate Accounting. *Harold Dudley Greeley*
Bank System and Accounting. *Frank Loomis Beach*
Mathematics of Finance. *James V. Toner*
Mathematics of Accounting and Finance. *Seymour Walton* and *H. A. Finney*
The Accountancy of Investment. *Charles Ezra Sprague* and *Leroy L. Perrine*
Statistics as Applied in Business. *B. F. Young*

Finance, Investment, Banking and Insurance

Financial Handbook. *Robert H. Montgomery, editor*
The Financial Policy of Corporations. *Arthur Stone Dewing*
A Study of Corporation Securities. *Arthur Stone Dewing*
Controlling the Finances of a Business. *James O. McKinsey* and *Stuart P. Meech*
Finance. *Charles L. Jamison*
The Principles of Investment. *A. M. Sakolski*
The Art of Investment. *Morrell W. Gaines*
Analysis of Industrial Securities. *Carl Kraft* and *Louis P. Starkweather*
Foreign Securities. *John T. Madden* and *Marcus Nadler*
Investing in Foreign Securities. *George W. Edwards*
Security Syndicate Operations. *Arthur Galston*
The Work of the Stock Exchange. *J. Edward Meeker*
Investment Trust Organization and Management. *Leland Rex Robinson*
Extended Bond Tables. *Charles Ezra Sprague*
Banking Principles and Practice. *Ray B. Westerfield*
The Economics of Money, Credit and Banking. *F. Cyril James*
Principles of Banking and Finance. *George W. Edwards*
Bank Loans on Statement and Character. *Mahlon D. Miller*
Practical Bank Operation. *L. H. Langston*
Bank Credits and Acceptances. *Wilbert Ward*
The Bank and Its Directors. *Craig B. Hazlewood*
Insurance. *S. B. Ackerman*
Casualty Insurance. *C. A. Kulp*
Surety Bonds. *Edward C. Lunt*

Costs, Production and Management

Cost and Production Handbook. *L. P. Alford, editor*
Budgeting. *Prior Sinclair*
Cost Accounting—Theory and Practice. *James L. Dohr*
Industrial Organization and Management. *William B. Cornell*
Industrial Engineering and Factory Management. *Arthur G. Anderson*
Stores and Materials Control. *Madison Cartmell*
Purchasing. *W. N. Mitchell*
Production Planning—Its Engineering Elements. *John W. Hallock*
Work Routing in Production. *John Younger.*
Patents. *Roger Sherman Hoar*
Standard Costs. *G. Charter Harrison*
Wage Incentive Methods. *Charles W. Lytle*
How to Analyze Costs. *Coleman Lloyd Maze* and *John George Glover*
Principles of Engineering Economy. *Eugene L. Grant*
An Introduction to Business Management. *Harold H. Maynard, Walter C. Weidler* and *Karl D. Reyer*

Selling and Advertising

Principles of Marketing. *Harold H. Maynard, Walter C. Weidler* and *Theodore N. Beckman*
Planned Marketing. *Vergil D. Reed*
Practical Salesmanship. *Williamson L. Barnhart*
Developing and Managing Salesmen. *Ray Giles*
Wholesaling. *Theodore N. Beckman*
The Principles of Advertising. *Harry Tipper, George Burton Hotchkiss, Harry L. Hollingworth,* and *Frank Alvah Parsons*
Writing Advertising. *James Davis Woolf*
Economics of Consumption. *Paul H. Nystrom*
Principles of Retail Store Operation. *Paul H. Nystrom*

Law and Taxation

Corporation Procedure. *Thomas Conyngton* and *R. J. Bennett*
Business Law. *Thomas Conyngton*
Wills, Executors and Trustees. *William J. Grange, Walter A. Staub* and *Eugene G. Blackford*
Profits, Dividends and the Law. *Prosper Reiter, Jr.*
Corporate Resolutions. *Isabel Drummond*
Law Making in the United States. *Harvey Walker*
Conditional Sales. *Roger Sherman Hoar*
Federal Tax Handbook. *Robert H. Montgomery*
Federal Tax Practice. *Robert H. Montgomery*

Miscellaneous

American Business Practice (12 volumes)
Effective Collection Methods. *Edward H. Gardner* and *Frank A. Fall*
Credit Management. *Emery E. Olson* and *J. W. Hallman*
Economics. *Bruce Winton Knight* and *Nelson Lee Smith*
Real Estate Appraisal and Valuation. *Philip W. Kniskern*
Warehousing. *H. A. Haring*
Effective Business Letters. *Edward H. Gardner* and *Robert R. Aurner*
How to Talk. *John Mantle Clapp* and *Edwin A. Kane*
How to Write. *John Mantle Clapp* and *Homer Heath Nugent*
College Grammar. *Mason Long*
Indexing and Filing. *E. R. Hudders*
Secretarial Training. *Edward J. McNamara*
Influencing Men in Business. *Walter Dill Scott* and *Delton T. Howard*
Developing Executive Ability. *Enoch Burton Gowin*
Psychology. *Frederick H. Lund*
An Introduction to Sociology. *Carl H. Dawson* and *Warner E. Gettys*
Trade Associations—Their Services to Industry. *Joseph H. Foth*